|  |  |  |
| --- | --- | --- |
| Patient Information **Patient Name** S1  **DOB**  **Sex** Unknown  **MRN** | Reference Information **Ordering Physician**  **Order Date**  **Contact/Recipient**  **Additional** | Sample Information **Specimen Site**  **Collection Date**  **Received Date**  **Accession #** |

## **About the Test**

Golden Labs utilizes a Next Generation Sequencing (NGS) based assay of cancer-related genes to detect relevant genomic alterations that provide therapeutic guidance, disease diagnostic evidence or prognostic indication. See Methods and Limitations.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Results Summary**  **Negative Findings**  No pathogenic single nucleotide variants, indels, copy number changes, or structural variations found for:  | **EGFR** | **ALK** | **ROS1** |  **Genomic Signatures**  The following genomic signature(s) were analyzed for this sample:  TMB: High | 12.5 mut/Mb  MSI: High | 35.9 % unstable MSI loci  HRD: Positive | 43 Genomic Instability Score   |  |  | | --- | --- | | **Genomic Finding** | **Number of Findings Detected** | | Genomic Findings with Clinical Evidence | 9 | | Genomic Findings with Prognostic/Diagnostic Evidence | 2 | | Variants with Uncertain Clinical Significance | 0 | | Germline Alterations | 1 | |

# **Genomic Findings with Evidence of Clinical Significance**

## **Genomic Findings with Clinical Evidence**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Genomic Finding | FDA-Approved Therapies  in Patient’s Tumor Type | Therapies of Potential Significance | Resistance | Potential Clinical Trials |
| ALK Negative Finding (NF) EGFR Negative Finding (NF) ROS1 Negative Finding (NF) | Cemiplimab-rwlc, Durvalumab + Tremelimumab, Nivolumab + Ipilimumab (1A) | None | None | No |
| ALK Negative Finding (NF) EGFR Negative Finding (NF) | None | Durvalumab + Tremelimumab, Nivolumab + Ipilimumab (1A) | None | No |
| Unspecified | Atezolizumab, Durvalumab, Nivolumab (1A) | None | None | Yes, see clinical trials section |
| Unspecified | Afatinib, Atezolizumab, Bevacizumab, Durvalumab, Necitumumab, Nivolumab, Ramucirumab (1A) | None | None | No |
| BRAF V600E | Dabrafenib, Dabrafenib + Trametinib, Vemurafenib (1A) | Dabrafenib + Trametinib, Encorafenib + Binimetinib (2C) Vemurafenib + Rituximab (2C) Encorafenib + Cetuximab, Encorafenib + Panitumumab (2C) Vemurafenib + Cobimetinib (2C) Trametinib, Vemurafenib + Cobimetinib, Vemurafenib + Cobimetinib + Atezolizumab (2C) | Dabrafenib + Trametinib (2D) Cetuximab, Panitumumab, Trametinib (2C) | Yes, see clinical trials section |
| ERBB2 Amplification | Ado-trastuzumab emtansine, Fam-trastuzumab deruxtecan-nxki (1A) Ado-trastuzumab emtansine, Fam-trastuzumab deruxtecan-nxki (1A) | Trastuzumab, Trastuzumab + Pembrolizumab (2C) Fam-trastuzumab deruxtecan, Trastuzumab, Trastuzumab + Pembrolizumab (2C) Lapatinib, Margetuximab-cmkb, Neratinib, Trastuzumab, Trastuzumab + Lapatinib, Trastuzumab + Pertuzumab, Trastuzumab + Tucatinib (2C) | Afatinib, Trastuzumab (1A) | Yes, see clinical trials section |
| PIK3CA Amplification | None | Alpelisib + Fulvestrant, Everolimus + Exemestane, Fulvestrant (2C) Alpelisib + Fulvestrant, Everolimus + Exemestane, Fulvestrant (2C) Alpelisib + Fulvestrant, Everolimus + Exemestane, Fulvestrant (2C) | None | No |
| TMB High | Pembrolizumab (1A) | None | None | No |
| MSI High | Pembrolizumab (1A) | Dostarlimab-gxly (2C) Avelumab (2C) Dostarlimab-gxly (2C) Avelumab (2C) Dostarlimab-gxly (2C) Avelumab (2C) | None | No |
| HRD Positive | None | Olaparib, Talazoparib (2C) Niraparib, Olaparib, Olaparib + Bevacizumab, Rucaparib (2C) Olaparib (2C) Olaparib, Rucaparib (2C) Olaparib, Talazoparib (2C) Niraparib, Olaparib, Olaparib + Bevacizumab, Rucaparib (2C) Olaparib (2C) Olaparib, Rucaparib (2C) Olaparib, Talazoparib (2C) Niraparib, Olaparib, Olaparib + Bevacizumab, Rucaparib (2C) Olaparib (2C) Olaparib, Rucaparib (2C) | None | No |

## **Genomic Findings with Prognostic or Diagnostic Evidence**

|  |  |  |  |
| --- | --- | --- | --- |
| Gene | Description | Location | Evidence |
| *BRAF* | Val600Glu | Exon 15 | Prognostic Tier II - Level C Diagnostic Tier I - Level A |
| *ERBB2* | Amplification | Amplification | Prognostic Tier I - Level B Diagnostic Tier I - Level A |

## **Somatic Variants with Clinical Evidence**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Genomic Finding | VAF | Impact | Location | Classification | Evidence |
| *BRAF*  Val600Glu | 6.18% | Activating Mutation | Exon 15 | Oncogenic | Drug Sensitivity Tier I - Level A Drug Resistance Tier II - Level C |

## **Copy Number Variations with Clinical Evidence**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Primary Gene | Overlapping Genes | State | ISCN | Impact | Evidence |
| *ERBB2* | ERBB2, MIR4728, MIEN1 | Duplication | 17q12 (17:37856317-37884911)x0 | Activating Mutation | Drug Sensitivity Tier I - Level A Drug Resistance Tier I - Level A |
| *PIK3CA* | PIK3CA, KCNMB3 | Duplication | 3q26.32 (3:178866145-178957881)x3 | Activating Mutation | Drug Sensitivity Tier II - Level C |

## **Genomic Signatures with Clinical Evidence**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Genomic Finding | State | Location | Impact | Evidence |
| TMB High | 12.5 mut/Mb | Genomic Signature | Unknown | Drug Sensitivity Tier I - Level A |
| MSI High | 35.9 % unstable MSI loci | Genomic Signature | Unknown | Drug Sensitivity Tier I - Level A |
| HRD Positive | 43 Genomic Instability Score | Genomic Signature | Unknown | Drug Sensitivity Tier II - Level C |

## **Negative Findings with Clinical Evidence**

|  |  |
| --- | --- |
| Primary Gene | Description |
| EGFR | Negative Finding |
| ALK | Negative Finding |
| ROS1 | Negative Finding |

## **Other Reported Biomarkers**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | Gene | Type | Description | | *MYCL* | Amplification | Amplification | | *TFRC* | Amplification | Amplification | | *ABL1* | Fusion | Fusion with BCR | | |  |  |  | | --- | --- | --- | | Gene | Type | Description | | *PIK3CB* | Amplification | Amplification | | *ERCC2* | Amplification | Amplification | |

# **Variants with Uncertain Clinical Significance**

## **Germline Alterations Detected**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Gene | Type | Description | Genotype | Disease Risk | Classification |
| *RAF1* | Missense Variant | Ser257Leu | Heterozygous | Autosomal Dominant | Pathogenic |

**Relevant Clinical Trials**

## **Clinical Trials Summary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Genomic Finding | Type | NCT ID | Drugs | Phase |
| Unspecified | Disease | NCT03811002  NCT05091567  NCT03782207 | Atezolizumab  Atezolizumab  Atezolizumab | II/III  III |
| BRAF V600E | Mutation | NCT04302025 | Atezolizumab, Vemurafenib, Cobimetinib | II |
| ERBB2 Amplification | CNV | NCT04579380 | trastuzumab | II |

**Methods and Limitations**

**METHODOLOGY**

The individual’s DNA was extracted and fragmented, with fragments from the coding regions of the select gene panel targeted for amplification and sequencing. Reads from the sequence output were aligned to the human reference genome (GRCh37) using the Burrows-Wheeler Aligner (BWA). Variants to the reference were called using the Genomic Analysis Tool Kit (GATK). The variants were annotated and filtered using the Golden Helix VarSeq analysis workflow implementing the ACMG guidelines for interpretation of sequence variants. This includes comparison against the gnomAD population catalog of variants in 123,136 exomes, the 1000 Genomes Project Consortium’s publication of 2,500 genomes, the NCBI ClinVar database of clinical assertions on variant’s pathogenicity and multiple lines of computational evidence on conservation and functional impact. This test has not been cleared or approved by the U.S. Food and Drug Administration (FDA). The FDA has determined that such clearance or approval is not necessary.

**VARIANT ASSESSMENT PROCESS**

The following databases and algorithms are used to annotate and evaluate the impact of the variant in the context of human disease: 1000 genomes, gnomAD, ClinVar, OMIM, dbSNP, NCIB RefSeq Genes, ExAC Gene Constraints, VS-SIFT, VS-PolyPhen2, PhyloP, GERP++, GeneSplicer, MaxEntScan, NNSplice, PWM Splice Predictor. Analysis was reported using HGVS nomenclature ([www.hgvs.org/mutnomen](http://www.hgvs.org/mutnomen)) as implemented by the VarSeq transcript annotation algorithm. The reported transcript matches that used most frequently by the clinical labs submitting to ClinVar.

**LIMITATIONS**

It should be noted that this test is restricted to a limited number of genes and does not include all intronic and non-coding regions. This report only includes variants that meet a level of evidence threshold for cause or contribute to disease. Certain classes of genomic variants are also not covered using the NGS testing technology, including triplet repeat expansions, copy number alterations, translocations, gene fusions, or other complex structural rearrangements. More evidence for disease association of genes and causal pathogenic variants are discovered every year, and it is recommended that genetic variants are re-interpreted with updated software and annotations periodically.

**GENERAL REFERENCES**

Li, Marilyn M., *et al.* "Standards and guidelines for the interpretation and reporting of sequence variants in cancer: a joint consensus recommendation of the Association for Molecular Pathology, American Society of Clinical Oncology, and College of American Pathologists." *The Journal of Molecular Diagnostics* (2017) 19(1): 4-23. PMID: 27993330.

Richards, Sue, *et al.* "Standards and guidelines for the interpretation of sequence variants: a joint consensus recommendation of the American College of Medical Genetics and Genomics and the Association for Molecular Pathology." *Genetics in Medicine* (2015) 17(5): 405. PMID: 25741868.

Forbes, Simon A., *et al.* "COSMIC: somatic cancer genetics at high-resolution." *Nucleic Acids Research* (2016) 45(D1): D777-D783. PMID: 27899578.

Exome Aggregation Consortium *et al.* “Analysis of Protein-Coding Genetic Variation in 60,706 Humans.” *Nature* (2016) 536(7616): 285–291. PMID: 27535533.

The 1000 Genomes Project Consortium. “A Global Reference for Human Genetic Variation.” *Nature* (2015) 526(7571): 68–74. PMID: 26432245.

**INLINE REFERENCES BY PUBMED**

| PMID | Citation |
| --- | --- |
| [28265006](https://www.ncbi.nlm.nih.gov/pubmed/28265006) | Characterization of the Anti-PD-1 Antibody REGN2810 and Its Antitumor Activity in Human PD-1 Knock-In Mice. *Burova E et al., Mol Cancer Ther. 2017 May* |
| [34937915](https://www.ncbi.nlm.nih.gov/pubmed/34937915) | The foundations of immune checkpoint blockade and the ipilimumab approval decennial. *Korman AJ et al., Nat Rev Drug Discov. 2022 Jul* |
| [36008722](https://www.ncbi.nlm.nih.gov/pubmed/36008722) | Cemiplimab plus chemotherapy versus chemotherapy alone in non-small cell lung cancer: a randomized, controlled, double-blind phase 3 trial. *Gogishvili M et al., Nat Med. 2022 Nov* |
| [33476593](https://www.ncbi.nlm.nih.gov/pubmed/33476593) | First-line nivolumab plus ipilimumab combined with two cycles of chemotherapy in patients with non-small-cell lung cancer (CheckMate 9LA): an international, randomised, open-label, phase 3 trial. *Paz-Ares L et al., Lancet Oncol. 2021 Feb* |
| [34607285](https://www.ncbi.nlm.nih.gov/pubmed/34607285) | First-line nivolumab plus ipilimumab with two cycles of chemotherapy versus chemotherapy alone (four cycles) in advanced non-small-cell lung cancer: CheckMate 9LA 2-year update. *Reck M et al., ESMO Open. 2021 Oct* |
| [27042127](https://www.ncbi.nlm.nih.gov/pubmed/27042127) | Tremelimumab: research and clinical development. *Comin-Anduix B et al., Onco Targets Ther. 2016* |
| [23444951](https://www.ncbi.nlm.nih.gov/pubmed/23444951) | Tremelimumab: a review of development to date in solid tumors. *Tarhini AA, Immunotherapy. 2013 Mar* |
| [36327426](https://www.ncbi.nlm.nih.gov/pubmed/36327426) | Durvalumab With or Without Tremelimumab in Combination With Chemotherapy as First-Line Therapy for Metastatic Non-Small-Cell Lung Cancer: The Phase III POSEIDON Study. *Johnson ML et al., J Clin Oncol. 2022 Nov 03* |
| [33645367](https://www.ncbi.nlm.nih.gov/pubmed/33645367) | Durvalumab: an investigational anti-PD-L1 antibody for the treatment of biliary tract cancer. *Rizzo A et al., Expert Opin Investig Drugs. 2021 Apr* |
| [34731446](https://www.ncbi.nlm.nih.gov/pubmed/34731446) | Durvalumab: A Review in Extensive-Stage SCLC. *Al-Salama ZT, Target Oncol. 2021 Nov* |
| [28878676](https://www.ncbi.nlm.nih.gov/pubmed/28878676) | PD-1 and PD-L1 Checkpoint Signaling Inhibition for Cancer Immunotherapy: Mechanism, Combinations, and Clinical Outcome. *Alsaab HO et al., Front Pharmacol. 2017* |
| [27979383](https://www.ncbi.nlm.nih.gov/pubmed/27979383) | Atezolizumab versus docetaxel in patients with previously treated non-small-cell lung cancer (OAK): a phase 3, open-label, multicentre randomised controlled trial. *Rittmeyer A et al., Lancet. 2017 Jan 21* |
| [28885881](https://www.ncbi.nlm.nih.gov/pubmed/28885881) | Durvalumab after Chemoradiotherapy in Stage III Non-Small-Cell Lung Cancer. *Antonia SJ et al., N Engl J Med. 2017 Nov 16* |
| [30280658](https://www.ncbi.nlm.nih.gov/pubmed/30280658) | Overall Survival with Durvalumab after Chemoradiotherapy in Stage III NSCLC. *Antonia SJ et al., N Engl J Med. 2018 Dec 13* |
| [32209338](https://www.ncbi.nlm.nih.gov/pubmed/32209338) | Outcomes with durvalumab by tumour PD-L1 expression in unresectable, stage III non-small-cell lung cancer in the PACIFIC trial. *Paz-Ares L et al., Ann Oncol. 2020 Jun* |
| [33583206](https://www.ncbi.nlm.nih.gov/pubmed/33583206) | Patient-reported outcomes with durvalumab by PD-L1 expression and prior chemoradiotherapy-related variables in unresectable stage III non-small-cell lung cancer. *Garassino MC et al., Future Oncol. 2021 Apr* |
| [35403841](https://www.ncbi.nlm.nih.gov/pubmed/35403841) | Neoadjuvant Nivolumab plus Chemotherapy in Resectable Lung Cancer. *Forde PM et al., N Engl J Med. 2022 May 26* |
| [26028407](https://www.ncbi.nlm.nih.gov/pubmed/26028407) | Nivolumab versus Docetaxel in Advanced Squamous-Cell Non-Small-Cell Lung Cancer. *Brahmer J et al., N Engl J Med. 2015 Jul 09* |
| [33449799](https://www.ncbi.nlm.nih.gov/pubmed/33449799) | Five-Year Outcomes From the Randomized, Phase III Trials CheckMate 017 and 057: Nivolumab Versus Docetaxel in Previously Treated Non-Small-Cell Lung Cancer. *Borghaei H et al., J Clin Oncol. 2021 Mar 01* |
| [26412456](https://www.ncbi.nlm.nih.gov/pubmed/26412456) | Nivolumab versus Docetaxel in Advanced Nonsquamous Non-Small-Cell Lung Cancer. *Borghaei H et al., N Engl J Med. 2015 Oct 22* |
| [29023213](https://www.ncbi.nlm.nih.gov/pubmed/29023213) | Nivolumab Versus Docetaxel in Previously Treated Patients With Advanced Non-Small-Cell Lung Cancer: Two-Year Outcomes From Two Randomized, Open-Label, Phase III Trials (CheckMate 017 and CheckMate 057). *Horn L et al., J Clin Oncol. 2017 Dec 10* |
| [23718298](https://www.ncbi.nlm.nih.gov/pubmed/23718298) | Ramucirumab: a novel antiangiogenic agent. *Wadhwa R et al., Future Oncol. 2013 Jun* |
| [30314524](https://www.ncbi.nlm.nih.gov/pubmed/30314524) | Targeting VEGFR2 with Ramucirumab strongly impacts effector/ activated regulatory T cells and CD8T cells in the tumor microenvironment. *Tada Y et al., J Immunother Cancer. 2018 Oct 11* |
| [27306885](https://www.ncbi.nlm.nih.gov/pubmed/27306885) | Evolution of ramucirumab in the treatment of cancer - A review of literature. *Vennepureddy A et al., J Oncol Pharm Pract. 2017 Oct* |
| [29191593](https://www.ncbi.nlm.nih.gov/pubmed/29191593) | Outcomes in patients with aggressive or refractory disease from REVEL: A randomized phase III study of docetaxel with ramucirumab or placebo for second-line treatment of stage IV non-small-cell lung cancer. *Reck M et al., Lung Cancer. 2017 Oct* |
| [24933332](https://www.ncbi.nlm.nih.gov/pubmed/24933332) | Ramucirumab plus docetaxel versus placebo plus docetaxel for second-line treatment of stage IV non-small-cell lung cancer after disease progression on platinum-based therapy (REVEL): a multicentre, double-blind, randomised phase 3 trial. *Garon EB et al., Lancet. 2014 Aug 23* |
| [23419196](https://www.ncbi.nlm.nih.gov/pubmed/23419196) | The VEGF signaling pathway in cancer: the road ahead. *Stacker SA et al., Chin J Cancer. 2013 Jun* |
| [20688807](https://www.ncbi.nlm.nih.gov/pubmed/20688807) | Bevacizumab. *Kazazi-Hyseni F et al., Oncologist. 2010* |
| [32335505](https://www.ncbi.nlm.nih.gov/pubmed/32335505) | Bevacizumab (Avastin®) in cancer treatment: A review of 15 years of clinical experience and future outlook. *Garcia J et al., Cancer Treat Rev. 2020 Jun* |
| [17167137](https://www.ncbi.nlm.nih.gov/pubmed/17167137) | Paclitaxel-carboplatin alone or with bevacizumab for non-small-cell lung cancer. *Sandler A et al., N Engl J Med. 2006 Dec 14* |
| [17602060](https://www.ncbi.nlm.nih.gov/pubmed/17602060) | FDA drug approval summary: bevacizumab (Avastin) plus Carboplatin and Paclitaxel as first-line treatment of advanced/metastatic recurrent nonsquamous non-small cell lung cancer. *Cohen MH et al., Oncologist. 2007 Jun* |
| [33725344](https://www.ncbi.nlm.nih.gov/pubmed/33725344) | A Review of Monoclonal Antibody-Based Treatments in Non-small Cell Lung Cancer. *Panahi Y et al., Adv Exp Med Biol. 2021* |
| [20150572](https://www.ncbi.nlm.nih.gov/pubmed/20150572) | Overall survival with cisplatin-gemcitabine and bevacizumab or placebo as first-line therapy for nonsquamous non-small-cell lung cancer: results from a randomised phase III trial (AVAiL). *Reck M et al., Ann Oncol. 2010 Sep* |
| [30392436](https://www.ncbi.nlm.nih.gov/pubmed/30392436) | Afatinib and Erlotinib in the treatment of squamous-cell lung cancer. *Tagliamento M et al., Expert Opin Pharmacother. 2018 Dec* |
| [29902295](https://www.ncbi.nlm.nih.gov/pubmed/29902295) | Association of ERBB Mutations With Clinical Outcomes of Afatinib- or Erlotinib-Treated Patients With Lung Squamous Cell Carcinoma: Secondary Analysis of the LUX-Lung 8 Randomized Clinical Trial. *Goss GD et al., JAMA Oncol. 2018 Sep 01* |
| [26156651](https://www.ncbi.nlm.nih.gov/pubmed/26156651) | Afatinib versus erlotinib as second-line treatment of patients with advanced squamous cell carcinoma of the lung (LUX-Lung 8): an open-label randomised controlled phase 3 trial. *Soria JC et al., Lancet Oncol. 2015 Aug* |
| [33061419](https://www.ncbi.nlm.nih.gov/pubmed/33061419) | Advanced Squamous Cell Carcinoma of the Lung: Current Treatment Approaches and the Role of Afatinib. *Santos ES et al., Onco Targets Ther. 2020* |
| [31432705](https://www.ncbi.nlm.nih.gov/pubmed/31432705) | Pembrolizumab in lung cancer: current evidence and future perspectives. *Palumbo G et al., Future Oncol. 2019 Oct* |
| [30280635](https://www.ncbi.nlm.nih.gov/pubmed/30280635) | Pembrolizumab plus Chemotherapy for Squamous Non-Small-Cell Lung Cancer. *Paz-Ares L et al., N Engl J Med. 2018 Nov 22* |
| [31751163](https://www.ncbi.nlm.nih.gov/pubmed/31751163) | Health-Related Quality of Life With Carboplatin-Paclitaxel or nab-Paclitaxel With or Without Pembrolizumab in Patients With Metastatic Squamous Non-Small-Cell Lung Cancer. *Mazieres J et al., J Clin Oncol. 2020 Jan 20* |
| [18275813](https://www.ncbi.nlm.nih.gov/pubmed/18275813) | Structural basis for EGF receptor inhibition by the therapeutic antibody IMC-11F8. *Li S et al., Structure. 2008 Feb* |
| [30025476](https://www.ncbi.nlm.nih.gov/pubmed/30025476) | Necitumumab: a new option for first-line treatment of squamous cell lung cancer. *Jiménez Aguilar E et al., Expert Opin Drug Metab Toxicol. 2018 Aug* |
| [26045340](https://www.ncbi.nlm.nih.gov/pubmed/26045340) | Necitumumab plus gemcitabine and cisplatin versus gemcitabine and cisplatin alone as first-line therapy in patients with stage IV squamous non-small-cell lung cancer (SQUIRE): an open-label, randomised, controlled phase 3 trial. *Thatcher N et al., Lancet Oncol. 2015 Jul* |
| [26980471](https://www.ncbi.nlm.nih.gov/pubmed/26980471) | The Effect of Necitumumab in Combination with Gemcitabine plus Cisplatin on Tolerability and on Quality of Life: Results from the Phase 3 SQUIRE Trial. *Reck M et al., J Thorac Oncol. 2016 Jun* |
| [26301799](https://www.ncbi.nlm.nih.gov/pubmed/26301799) | BRAF Alterations as Therapeutic Targets in Non-Small-Cell Lung Cancer. *Nguyen-Ngoc T et al., J Thorac Oncol. 2015 Oct* |
| [15035987](https://www.ncbi.nlm.nih.gov/pubmed/15035987) | Mechanism of activation of the RAF-ERK signaling pathway by oncogenic mutations of B-RAF. *Wan PT et al., Cell. 2004 Mar 19* |
| [15488754](https://www.ncbi.nlm.nih.gov/pubmed/15488754) | Guilty as charged: B-RAF is a human oncogene. *Garnett MJ et al., Cancer Cell. 2004 Oct* |
| [25435214](https://www.ncbi.nlm.nih.gov/pubmed/25435214) | Targeting RAS-ERK signalling in cancer: promises and challenges. *Samatar AA et al., Nat Rev Drug Discov. 2014 Dec* |
| [30899313](https://www.ncbi.nlm.nih.gov/pubmed/30899313) | Agents to treat BRAF-mutant lung cancer. *Alvarez JGB et al., Drugs Context. 2019* |
| [29540830](https://www.ncbi.nlm.nih.gov/pubmed/29540830) | Classifying BRAF alterations in cancer: new rational therapeutic strategies for actionable mutations. *Dankner M et al., Oncogene. 2018 06* |
| [29438093](https://www.ncbi.nlm.nih.gov/pubmed/29438093) | FDA Approval Summary: Dabrafenib and Trametinib for the Treatment of Metastatic Non-Small Cell Lung Cancers Harboring BRAF V600E Mutations. *Odogwu L et al., Oncologist. 2018 06* |
| [12068308](https://www.ncbi.nlm.nih.gov/pubmed/12068308) | Mutations of the BRAF gene in human cancer. *Davies H et al., Nature. 2002 Jun 27* |
| [23833300](https://www.ncbi.nlm.nih.gov/pubmed/23833300) | Clinical, pathologic, and biologic features associated with BRAF mutations in non-small cell lung cancer. *Cardarella S et al., Clin Cancer Res. 2013 Aug 15* |
| [24552757](https://www.ncbi.nlm.nih.gov/pubmed/24552757) | BRAF-mutations in non-small cell lung cancer. *Brustugun OT et al., Lung Cancer. 2014 Apr* |
| [25273224](https://www.ncbi.nlm.nih.gov/pubmed/25273224) | Clinicopathologic features and outcomes of patients with lung adenocarcinomas harboring BRAF mutations in the Lung Cancer Mutation Consortium. *Villaruz LC et al., Cancer. 2015 Feb 01* |
| [30464690](https://www.ncbi.nlm.nih.gov/pubmed/30464690) | Patients with non-small-cell lung cancer harbouring a BRAF mutation: a multicentre study exploring clinical characteristics, management, and outcomes in a real-life setting: EXPLORE GFPC 02-14. *Auliac JB et al., Curr Oncol. 2018 10* |
| [21825258](https://www.ncbi.nlm.nih.gov/pubmed/21825258) | Clinical features and outcome of patients with non-small-cell lung cancer harboring BRAF mutations. *Marchetti A et al., J Clin Oncol. 2011 Sep 10* |
| [20496265](https://www.ncbi.nlm.nih.gov/pubmed/20496265) | PLX-4032, a small-molecule B-Raf inhibitor for the potential treatment of malignant melanoma. *Smalley KS, Curr Opin Investig Drugs. 2010 Jun* |
| [21639808](https://www.ncbi.nlm.nih.gov/pubmed/21639808) | Improved survival with vemurafenib in melanoma with BRAF V600E mutation. *Chapman PB et al., N Engl J Med. 2011 Jun 30* |
| [20818844](https://www.ncbi.nlm.nih.gov/pubmed/20818844) | Inhibition of mutated, activated BRAF in metastatic melanoma. *Flaherty KT et al., N Engl J Med. 2010 Aug 26* |
| [22608338](https://www.ncbi.nlm.nih.gov/pubmed/22608338) | Dabrafenib in patients with melanoma, untreated brain metastases, and other solid tumours: a phase 1 dose-escalation trial. *Falchook GS et al., Lancet. 2012 May 19* |
| [23918947](https://www.ncbi.nlm.nih.gov/pubmed/23918947) | Phase II trial (BREAK-2) of the BRAF inhibitor dabrafenib (GSK2118436) in patients with metastatic melanoma. *Ascierto PA et al., J Clin Oncol. 2013 Sep 10* |
| [22889973](https://www.ncbi.nlm.nih.gov/pubmed/22889973) | Targeted therapies: BREAKing a path for progress--dabrafenib confirms class effect. *Tawbi HA et al., Nat Rev Clin Oncol. 2012 Sep* |
| [31715422](https://www.ncbi.nlm.nih.gov/pubmed/31715422) | Trametinib in the treatment of multiple malignancies harboring MEK1 mutations. *Lian T et al., Cancer Treat Rev. 2019 Dec* |
| [22743296](https://www.ncbi.nlm.nih.gov/pubmed/22743296) | A patient with BRAF V600E lung adenocarcinoma responding to vemurafenib. *Gautschi O et al., J Thorac Oncol. 2012 Oct* |
| [23733758](https://www.ncbi.nlm.nih.gov/pubmed/23733758) | Dramatic response induced by vemurafenib in a BRAF V600E-mutated lung adenocarcinoma. *Peters S et al., J Clin Oncol. 2013 Jul 10* |
| [24888229](https://www.ncbi.nlm.nih.gov/pubmed/24888229) | BRAF V600E-mutated lung adenocarcinoma with metastases to the brain responding to treatment with vemurafenib. *Robinson SD et al., Lung Cancer. 2014 Aug* |
| [25466451](https://www.ncbi.nlm.nih.gov/pubmed/25466451) | Response to dabrafenib after progression on vemurafenib in a patient with advanced BRAF V600E-mutant bronchial adenocarcinoma. *Schmid S et al., Lung Cancer. 2015 Jan* |
| [23524406](https://www.ncbi.nlm.nih.gov/pubmed/23524406) | Molecular characterization of acquired resistance to the BRAF inhibitor dabrafenib in a patient with BRAF-mutant non-small-cell lung cancer. *Rudin CM et al., J Thorac Oncol. 2013 May* |
| [27080216](https://www.ncbi.nlm.nih.gov/pubmed/27080216) | Dabrafenib in patients with BRAF(V600E)-positive advanced non-small-cell lung cancer: a single-arm, multicentre, open-label, phase 2 trial. *Planchard D et al., Lancet Oncol. 2016 May* |
| [27283860](https://www.ncbi.nlm.nih.gov/pubmed/27283860) | Dabrafenib plus trametinib in patients with previously treated BRAF(V600E)-mutant metastatic non-small cell lung cancer: an open-label, multicentre phase 2 trial. *Planchard D et al., Lancet Oncol. 2016 Jul* |
| [28919011](https://www.ncbi.nlm.nih.gov/pubmed/28919011) | Dabrafenib plus trametinib in patients with previously untreated BRAFV600E-mutant metastatic non-small-cell lung cancer: an open-label, phase 2 trial. *Planchard D et al., Lancet Oncol. 2017 Oct* |
| [29356698](https://www.ncbi.nlm.nih.gov/pubmed/29356698) | Development of encorafenib for BRAF-mutated advanced melanoma. *Koelblinger P et al., Curr Opin Oncol. 2018 Mar* |
| [29573941](https://www.ncbi.nlm.nih.gov/pubmed/29573941) | Encorafenib plus binimetinib versus vemurafenib or encorafenib in patients with BRAF-mutant melanoma (COLUMBUS): a multicentre, open-label, randomised phase 3 trial. *Dummer R et al., Lancet Oncol. 2018 May* |
| [28537004](https://www.ncbi.nlm.nih.gov/pubmed/28537004) | MEK Inhibitors in the Treatment of Metastatic Melanoma and Solid Tumors. *Grimaldi AM et al., Am J Clin Dermatol. 2017 Dec* |
| [30219628](https://www.ncbi.nlm.nih.gov/pubmed/30219628) | Overall survival in patients with BRAF-mutant melanoma receiving encorafenib plus binimetinib versus vemurafenib or encorafenib (COLUMBUS): a multicentre, open-label, randomised, phase 3 trial. *Dummer R et al., Lancet Oncol. 2018 Oct* |
| [26433819](https://www.ncbi.nlm.nih.gov/pubmed/26433819) | Comparison of dabrafenib and trametinib combination therapy with vemurafenib monotherapy on health-related quality of life in patients with unresectable or metastatic cutaneous BRAF Val600-mutation-positive melanoma (COMBI-v): results of a phase 3, open-label, randomised trial. *Grob JJ et al., Lancet Oncol. 2015 Oct* |
| [31580757](https://www.ncbi.nlm.nih.gov/pubmed/31580757) | Targeted Therapy in Advanced Melanoma With RareMutations. *Menzer C et al., J Clin Oncol. 2019 Nov 20* |
| [32388065](https://www.ncbi.nlm.nih.gov/pubmed/32388065) | Molecular mechanisms of resistance to BRAF and MEK inhibitors in BRAFnon-small cell lung cancer. *Facchinetti F et al., Eur J Cancer. 2020 Jun* |
| [18259690](https://www.ncbi.nlm.nih.gov/pubmed/18259690) | The epidermal growth factor receptor family: biology driving targeted therapeutics. *Wieduwilt MJ et al., Cell Mol Life Sci. 2008 May* |
| [9130710](https://www.ncbi.nlm.nih.gov/pubmed/9130710) | ErbB-2, the preferred heterodimerization partner of all ErbB receptors, is a mediator of lateral signaling. *Graus-Porta D et al., EMBO J. 1997 Apr 01* |
| [12620236](https://www.ncbi.nlm.nih.gov/pubmed/12620236) | The crystal structure of a truncated ErbB2 ectodomain reveals an active conformation, poised to interact with other ErbB receptors. *Garrett TP et al., Mol Cell. 2003 Feb* |
| [11252954](https://www.ncbi.nlm.nih.gov/pubmed/11252954) | Untangling the ErbB signalling network. *Yarden Y et al., Nat Rev Mol Cell Biol. 2001 Feb* |
| [17000658](https://www.ncbi.nlm.nih.gov/pubmed/17000658) | The epidermal growth factor receptor pathway: a model for targeted therapy. *Scaltriti M et al., Clin Cancer Res. 2006 Sep 15* |
| [27158780](https://www.ncbi.nlm.nih.gov/pubmed/27158780) | Distinct patterns of somatic genome alterations in lung adenocarcinomas and squamous cell carcinomas. *Campbell JD et al., Nat Genet. 2016 Jun* |
| [29337640](https://www.ncbi.nlm.nih.gov/pubmed/29337640) | Molecular Determinants of Response to Anti-Programmed Cell Death (PD)-1 and Anti-Programmed Death-Ligand 1 (PD-L1) Blockade in Patients With Non-Small-Cell Lung Cancer Profiled With Targeted Next-Generation Sequencing. *Rizvi H et al., J Clin Oncol. 2018 Mar 01* |
| [25079552](https://www.ncbi.nlm.nih.gov/pubmed/25079552) | Comprehensive molecular profiling of lung adenocarcinoma. *Cancer Genome Atlas Research Network, Nature. 2014 Jul 31* |
| [28336552](https://www.ncbi.nlm.nih.gov/pubmed/28336552) | Prospective Comprehensive Molecular Characterization of Lung Adenocarcinomas for Efficient Patient Matching to Approved and Emerging Therapies. *Jordan EJ et al., Cancer Discov. 2017 Jun* |
| [32109716](https://www.ncbi.nlm.nih.gov/pubmed/32109716) | Novel drugs targeting EGFR and HER2 exon 20 mutations in metastatic NSCLC. *Baraibar I et al., Crit Rev Oncol Hematol. 2020 Apr* |
| [34561632](https://www.ncbi.nlm.nih.gov/pubmed/34561632) | EGFR and HER2 exon 20 insertions in solid tumours: from biology to treatment. *Friedlaender A et al., Nat Rev Clin Oncol. 2022 Jan* |
| [15457249](https://www.ncbi.nlm.nih.gov/pubmed/15457249) | Lung cancer: intragenic ERBB2 kinase mutations in tumours. *Stephens P et al., Nature. 2004 Sep 30* |
| [23610105](https://www.ncbi.nlm.nih.gov/pubmed/23610105) | Lung cancer that harbors an HER2 mutation: epidemiologic characteristics and therapeutic perspectives. *Mazières J et al., J Clin Oncol. 2013 Jun 01* |
| [22761469](https://www.ncbi.nlm.nih.gov/pubmed/22761469) | Prevalence, clinicopathologic associations, and molecular spectrum of ERBB2 (HER2) tyrosine kinase mutations in lung adenocarcinomas. *Arcila ME et al., Clin Cancer Res. 2012 Sep 15* |
| [28743157](https://www.ncbi.nlm.nih.gov/pubmed/28743157) | HER2 mutations in lung adenocarcinomas: A report from the Lung Cancer Mutation Consortium. *Pillai RN et al., Cancer. 2017 Nov 01* |
| [31469421](https://www.ncbi.nlm.nih.gov/pubmed/31469421) | Frequency and outcomes of brain metastases in patients with HER2-mutant lung cancers. *Offin M et al., Cancer. 2019 12 15* |
| [31563805](https://www.ncbi.nlm.nih.gov/pubmed/31563805) | Novel HER2-Targeting Antibody-Drug Conjugates of Trastuzumab Beyond T-DM1 in Breast Cancer: Trastuzumab Deruxtecan(DS-8201a) and (Vic-)Trastuzumab Duocarmazine (SYD985). *Xu Z et al., Eur J Med Chem. 2019 Dec 01* |
| [35984233](https://www.ncbi.nlm.nih.gov/pubmed/35984233) | FDA Gives Nod to T-DXd for HER2-Mutant NSCLC. *, Cancer Discov. 2022 Oct 05* |
| [34534430](https://www.ncbi.nlm.nih.gov/pubmed/34534430) | Trastuzumab Deruxtecan in HER2-Mutant Non-Small-Cell Lung Cancer. *Li BT et al., N Engl J Med. 2022 Jan 20* |
| [24887180](https://www.ncbi.nlm.nih.gov/pubmed/24887180) | Trastuzumab emtansine: mechanisms of action and drug resistance. *Barok M et al., Breast Cancer Res. 2014 Mar 05* |
| [25082874](https://www.ncbi.nlm.nih.gov/pubmed/25082874) | Ado-trastuzumab emtansine: a HER2-positive targeted antibody-drug conjugate. *Corrigan PA et al., Ann Pharmacother. 2014 Nov* |
| [29989854](https://www.ncbi.nlm.nih.gov/pubmed/29989854) | Ado-Trastuzumab Emtansine for Patients With HER2-Mutant Lung Cancers: Results From a Phase II Basket Trial. *Li BT et al., J Clin Oncol. 2018 Aug 20* |
| [36175985](https://www.ncbi.nlm.nih.gov/pubmed/36175985) | HER2-targeted advanced metastatic gastric/gastroesophageal junction adenocarcinoma: treatment landscape and future perspectives. *Li W et al., Biomark Res. 2022 Sep 30* |
| [20728210](https://www.ncbi.nlm.nih.gov/pubmed/20728210) | Trastuzumab in combination with chemotherapy versus chemotherapy alone for treatment of HER2-positive advanced gastric or gastro-oesophageal junction cancer (ToGA): a phase 3, open-label, randomised controlled trial. *Bang YJ et al., Lancet. 2010 Aug 28* |
| [36229267](https://www.ncbi.nlm.nih.gov/pubmed/36229267) | Targeting HER2 in metastatic gastroesophageal adenocarcinomas: What is new? *Coutzac C et al., Bull Cancer. 2022 Oct 10* |
| [34912120](https://www.ncbi.nlm.nih.gov/pubmed/34912120) | The KEYNOTE-811 trial of dual PD-1 and HER2 blockade in HER2-positive gastric cancer. *Janjigian YY et al., Nature. 2021 Dec* |
| [32469182](https://www.ncbi.nlm.nih.gov/pubmed/32469182) | Trastuzumab Deruxtecan in Previously Treated HER2-Positive Gastric Cancer. *Shitara K et al., N Engl J Med. 2020 Jun 18* |
| [16775247](https://www.ncbi.nlm.nih.gov/pubmed/16775247) | HER2 mutation and response to trastuzumab therapy in non-small-cell lung cancer. *Cappuzzo F et al., N Engl J Med. 2006 Jun 15* |
| [33125859](https://www.ncbi.nlm.nih.gov/pubmed/33125859) | The Challenges of Tumor Mutational Burden as an Immunotherapy Biomarker. *Jardim DL et al., Cancer Cell. 2021 02 08* |
| [32919526](https://www.ncbi.nlm.nih.gov/pubmed/32919526) | Association of tumour mutational burden with outcomes in patients with advanced solid tumours treated with pembrolizumab: prospective biomarker analysis of the multicohort, open-label, phase 2 KEYNOTE-158 study. *Marabelle A et al., Lancet Oncol. 2020 10* |
| [23636398](https://www.ncbi.nlm.nih.gov/pubmed/23636398) | Integrated genomic characterization of endometrial carcinoma. *Cancer Genome Atlas Research Network et al., Nature. 2013 May 02* |
| [26028255](https://www.ncbi.nlm.nih.gov/pubmed/26028255) | PD-1 Blockade in Tumors with Mismatch-Repair Deficiency. *Le DT et al., N Engl J Med. 2015 Jun 25* |
| [32213091](https://www.ncbi.nlm.nih.gov/pubmed/32213091) | A Review of Immune Checkpoint Blockade Therapy in Endometrial Cancer. *Green AK et al., Am Soc Clin Oncol Educ Book. 2020 Mar* |
| [26181000](https://www.ncbi.nlm.nih.gov/pubmed/26181000) | Association of Polymerase e-Mutated and Microsatellite-Instable Endometrial Cancers With Neoantigen Load, Number of Tumor-Infiltrating Lymphocytes, and Expression of PD-1 and PD-L1. *Howitt BE et al., JAMA Oncol. 2015 Dec* |
| [19078925](https://www.ncbi.nlm.nih.gov/pubmed/19078925) | Endometrial cancer and Lynch syndrome: clinical and pathologic considerations. *Meyer LA et al., Cancer Control. 2009 Jan* |
| [25673086](https://www.ncbi.nlm.nih.gov/pubmed/25673086) | Milestones of Lynch syndrome: 1895-2015. *Lynch HT et al., Nat Rev Cancer. 2015 03* |
| [31956294](https://www.ncbi.nlm.nih.gov/pubmed/31956294) | Microsatellite instability: a review of what the oncologist should know. *Li K et al., Cancer Cell Int. 2020* |
| [31618962](https://www.ncbi.nlm.nih.gov/pubmed/31618962) | Microsatellite Instability: Diagnosis, Heterogeneity, Discordance, and Clinical Impact in Colorectal Cancer. *Evrard C et al., Cancers (Basel). 2019 Oct 15* |
| [34630437](https://www.ncbi.nlm.nih.gov/pubmed/34630437) | Lynch Syndrome and MSI-H Cancers: From Mechanisms to "Off-The-Shelf" Cancer Vaccines. *Roudko V et al., Front Immunol. 2021* |
| [30887763](https://www.ncbi.nlm.nih.gov/pubmed/30887763) | Immunotherapy in endometrial cancer: new scenarios on the horizon. *Di Tucci C et al., J Gynecol Oncol. 2019 May* |
| [30787022](https://www.ncbi.nlm.nih.gov/pubmed/30787022) | FDA Approval Summary: Pembrolizumab for the Treatment of Microsatellite Instability-High Solid Tumors. *Marcus L et al., Clin Cancer Res. 2019 07 01* |
| [28596308](https://www.ncbi.nlm.nih.gov/pubmed/28596308) | Mismatch repair deficiency predicts response of solid tumors to PD-1 blockade. *Le DT et al., Science. 2017 07 28* |
| [33516088](https://www.ncbi.nlm.nih.gov/pubmed/33516088) | Clinical use and mechanisms of resistance for PARP inhibitors in homologous recombination-deficient cancers. *Janysek DC et al., Transl Oncol. 2021 Mar* |
| [34423229](https://www.ncbi.nlm.nih.gov/pubmed/34423229) | Utility of Homologous Recombination Deficiency Biomarkers Across Cancer Types. *Takamatsu S et al., JCO Precis Oncol. 2021 08* |
| [35274707](https://www.ncbi.nlm.nih.gov/pubmed/35274707) | Homologous Recombination Deficiency: Concepts, Definitions, and Assays. *Stewart MD et al., Oncologist. 2022 03 11* |
| [33214570](https://www.ncbi.nlm.nih.gov/pubmed/33214570) | Frequency and prognostic value of mutations associated with the homologous recombination DNA repair pathway in a large pan cancer cohort. *Principe DR et al., Sci Rep. 2020 11 19* |
| [34740923](https://www.ncbi.nlm.nih.gov/pubmed/34740923) | Pan-cancer Analysis of Homologous Recombination Repair-associated Gene Alterations and Genome-wide Loss-of-Heterozygosity Score. *Westphalen CB et al., Clin Cancer Res. 2022 04 01* |
| [33149131](https://www.ncbi.nlm.nih.gov/pubmed/33149131) | Pan-cancer landscape of homologous recombination deficiency. *Nguyen L et al., Nat Commun. 2020 11 04* |
| [31362850](https://www.ncbi.nlm.nih.gov/pubmed/31362850) | Defining and Modulating 'BRCAness'. *Byrum AK et al., Trends Cell Biol. 2019 09* |
| [34021944](https://www.ncbi.nlm.nih.gov/pubmed/34021944) | Homologous Recombination Deficiency: Cancer Predispositions and Treatment Implications. *Toh M et al., Oncologist. 2021 09* |
| [33630412](https://www.ncbi.nlm.nih.gov/pubmed/33630412) | Practical considerations for optimising homologous recombination repair mutation testing in patients with metastatic prostate cancer. *Gonzalez D et al., J Pathol Clin Res. 2021 Jul* |
| [35228986](https://www.ncbi.nlm.nih.gov/pubmed/35228986) | Poly Adenosine Diphosphate-Ribose Polymerase (PARP) Inhibitors in Pancreatic Cancer. *Sunkara T et al., Cureus. 2022 Feb* |
| [34203281](https://www.ncbi.nlm.nih.gov/pubmed/34203281) | Biomarkers for Homologous Recombination Deficiency in Cancer. *Wagener-Ryczek S et al., J Pers Med. 2021 Jun 28* |
| [33687763](https://www.ncbi.nlm.nih.gov/pubmed/33687763) | FDA Approval Summary: Atezolizumab and Durvalumab in Combination with Platinum-Based Chemotherapy in Extensive Stage Small Cell Lung Cancer. *Mathieu L et al., Oncologist. 2021 05* |
| [32764980](https://www.ncbi.nlm.nih.gov/pubmed/32764980) | Update on Targeted Therapies for Advanced Non-Small Cell Lung Cancer: Durvalumab in Context. *Gullapalli S et al., Onco Targets Ther. 2020* |
| [28807052](https://www.ncbi.nlm.nih.gov/pubmed/28807052) | Whole-blood RNA transcript-based models can predict clinical response in two large independent clinical studies of patients with advanced melanoma treated with the checkpoint inhibitor, tremelimumab. *Friedlander P et al., J Immunother Cancer. 2017 08 15* |
| [35671201](https://www.ncbi.nlm.nih.gov/pubmed/35671201) | Phase I Study of Tremelimumab Monotherapy or in Combination With Durvalumab in Japanese Patients With Advanced Solid Tumors or Malignant Mesothelioma. *Fujiwara Y et al., Oncologist. 2022 Sep 02* |
| [30911265](https://www.ncbi.nlm.nih.gov/pubmed/30911265) | Immunological Agents Used in Cancer Treatment. *Simsek M et al., Eurasian J Med. 2019 Feb* |
| [36016731](https://www.ncbi.nlm.nih.gov/pubmed/36016731) | Durvalumab plus tremelimumab in unresectable hepatocellular carcinoma. *Kudo M, Hepatobiliary Surg Nutr. 2022 Aug* |
| [35276342](https://www.ncbi.nlm.nih.gov/pubmed/35276342) | Resistance to immune checkpoint blockade: Mechanisms, counter-acting approaches, and future directions. *Haddad AF et al., Semin Cancer Biol. 2022 Mar 09* |
| [32396674](https://www.ncbi.nlm.nih.gov/pubmed/32396674) | Emerging Therapeutic Implications of STK11 Mutation: Case Series. *Laderian B et al., Oncologist. 2020 09* |
| [34230008](https://www.ncbi.nlm.nih.gov/pubmed/34230008) | Resistance to Durvalumab and Durvalumab plus Tremelimumab Is Associated with Functional STK11 Mutations in Patients with Non-Small Cell Lung Cancer and Is Reversed by STAT3 Knockdown. *Pore N et al., Cancer Discov. 2021 11* |
| [33256089](https://www.ncbi.nlm.nih.gov/pubmed/33256089) | Overcoming Immune Evasion in Melanoma. *Eddy K et al., Int J Mol Sci. 2020 Nov 26* |
| [34184561](https://www.ncbi.nlm.nih.gov/pubmed/34184561) | Urothelial carcinoma in the era of immune checkpoint inhibitors. *Khalife N et al., Immunotherapy. 2021 08* |
| [33401585](https://www.ncbi.nlm.nih.gov/pubmed/33401585) | Immune Checkpoint Inhibitors for the Treatment of Bladder Cancer. *Lopez-Beltran A et al., Cancers (Basel). 2021 Jan 03* |
| [35101885](https://www.ncbi.nlm.nih.gov/pubmed/35101885) | FDA Approval Summary: Pembrolizumab, Atezolizumab, and Cemiplimab-rwlc as Single Agents for First-Line Treatment of Advanced/Metastatic PD-L1-High NSCLC. *Akinboro O et al., Clin Cancer Res. 2022 06 01* |
| [34104805](https://www.ncbi.nlm.nih.gov/pubmed/34104805) | Immunotherapy in non-small cell lung cancer: Update and new insights. *Mielgo-Rubio X et al., J Clin Transl Res. 2021 Feb 25* |
| [35062949](https://www.ncbi.nlm.nih.gov/pubmed/35062949) | Combination strategies with PD-1/PD-L1 blockade: current advances and future directions. *Yi M et al., Mol Cancer. 2022 01 21* |
| [31829747](https://www.ncbi.nlm.nih.gov/pubmed/31829747) | Atezolizumab in combination with bevacizumab, paclitaxel and carboplatin for the first-line treatment of patients with metastatic non-squamous non-small cell lung cancer, including patients with EGFR mutations. *Reck M et al., Expert Rev Respir Med. 2020 02* |
| [33427656](https://www.ncbi.nlm.nih.gov/pubmed/33427656) | Patterns of Disease Progression after Carboplatin/Etoposide + Atezolizumab in Extensive-Stage Small-Cell Lung Cancer (ES-SCLC). *Higgins KA et al., Int J Radiat Oncol Biol Phys. 2020 12 01* |
| [35032007](https://www.ncbi.nlm.nih.gov/pubmed/35032007) | Addition of Immune Checkpoint Inhibitors to Chemotherapy vs Chemotherapy Alone as First-Line Treatment in Extensive-Stage Small-Cell Lung Carcinoma: A Systematic Review and Meta-Analysis. *Arriola E et al., Oncol Ther. 2022 Jun* |
| [34956912](https://www.ncbi.nlm.nih.gov/pubmed/34956912) | The Role of Immune Checkpoint Blockade in the Hepatocellular Carcinoma: A Review of Clinical Trials. *Ozer M et al., Front Oncol. 2021* |
| [35081747](https://www.ncbi.nlm.nih.gov/pubmed/35081747) | Atezolizumab and bevacizumab with transarterial chemoembolization in hepatocellular carcinoma: the DEMAND trial protocol. *Ben Khaled N et al., Future Oncol. 2022 04* |
| [32534646](https://www.ncbi.nlm.nih.gov/pubmed/32534646) | Atezolizumab, vemurafenib, and cobimetinib as first-line treatment for unresectable advanced BRAFV600 mutation-positive melanoma (IMspire150): primary analysis of the randomised, double-blind, placebo-controlled, phase 3 trial. *Gutzmer R et al., Lancet. 2020 06 13* |
| [35131452](https://www.ncbi.nlm.nih.gov/pubmed/35131452) | Biomarkers of treatment benefit with atezolizumab plus vemurafenib plus cobimetinib in BRAFmutation-positive melanoma. *Robert C et al., Ann Oncol. 2022 05* |
| [23493883](https://www.ncbi.nlm.nih.gov/pubmed/23493883) | Afatinib: emerging next-generation tyrosine kinase inhibitor for NSCLC. *Nelson V et al., Onco Targets Ther. 2013* |
| [18408761](https://www.ncbi.nlm.nih.gov/pubmed/18408761) | BIBW2992, an irreversible EGFR/HER2 inhibitor highly effective in preclinical lung cancer models. *Li D et al., Oncogene. 2008 Aug 07* |
| [28149837](https://www.ncbi.nlm.nih.gov/pubmed/28149837) | Next-Generation EGFR Tyrosine Kinase Inhibitors for Treating-Mutant Lung Cancer beyond First Line. *Sullivan I et al., Front Med (Lausanne). 2016* |
| [34638411](https://www.ncbi.nlm.nih.gov/pubmed/34638411) | Molecular Mechanism of EGFR-TKI Resistance in-Mutated Non-Small Cell Lung Cancer: Application to Biological Diagnostic and Monitoring. *Reita D et al., Cancers (Basel). 2021 Sep 30* |
| [23470965](https://www.ncbi.nlm.nih.gov/pubmed/23470965) | Analysis of tumor specimens at the time of acquired resistance to EGFR-TKI therapy in 155 patients with EGFR-mutant lung cancers. *Yu HA et al., Clin Cancer Res. 2013 Apr 15* |
| [11970755](https://www.ncbi.nlm.nih.gov/pubmed/11970755) | The role of vascular endothelial growth factor (VEGF) in tumor angiogenesis and early clinical development of VEGF-receptor kinase inhibitors. *Verheul HM et al., Clin Breast Cancer. 2000 Sep* |
| [25568148](https://www.ncbi.nlm.nih.gov/pubmed/25568148) | Practical management of bevacizumab-related toxicities in glioblastoma. *Brandes AA et al., Oncologist. 2015 Feb* |
| [17212999](https://www.ncbi.nlm.nih.gov/pubmed/17212999) | Bevacizumab: an angiogenesis inhibitor for the treatment of solid malignancies. *Shih T et al., Clin Ther. 2006 Nov* |
| [19897538](https://www.ncbi.nlm.nih.gov/pubmed/19897538) | FDA drug approval summary: bevacizumab (Avastin) as treatment of recurrent glioblastoma multiforme. *Cohen MH et al., Oncologist. 2009 Nov* |
| [27748633](https://www.ncbi.nlm.nih.gov/pubmed/27748633) | The safety and efficacy of bevacizumab in the treatment of patients with recurrent or metastatic cervical cancer. *Minion LE et al., Expert Rev Anticancer Ther. 2017 Mar* |
| [15901587](https://www.ncbi.nlm.nih.gov/pubmed/15901587) | Bevacizumab in combination chemotherapy for colorectal and other cancers. *Motl S, Am J Health Syst Pharm. 2005 May 15* |
| [20061402](https://www.ncbi.nlm.nih.gov/pubmed/20061402) | FDA drug approval summary: bevacizumab plus interferon for advanced renal cell carcinoma. *Summers J et al., Oncologist. 2010* |
| [24687829](https://www.ncbi.nlm.nih.gov/pubmed/24687829) | Patient-reported outcome results from the open-label phase III AURELIA trial evaluating bevacizumab-containing therapy for platinum-resistant ovarian cancer. *Stockler MR et al., J Clin Oncol. 2014 May 01* |
| [28438473](https://www.ncbi.nlm.nih.gov/pubmed/28438473) | Bevacizumab and paclitaxel-carboplatin chemotherapy and secondary cytoreduction in recurrent, platinum-sensitive ovarian cancer (NRG Oncology/Gynecologic Oncology Group study GOG-0213): a multicentre, open-label, randomised, phase 3 trial. *Coleman RL et al., Lancet Oncol. 2017 06* |
| [32305099](https://www.ncbi.nlm.nih.gov/pubmed/32305099) | Bevacizumab and platinum-based combinations for recurrent ovarian cancer: a randomised, open-label, phase 3 trial. *Pfisterer J et al., Lancet Oncol. 2020 05* |
| [22204724](https://www.ncbi.nlm.nih.gov/pubmed/22204724) | Incorporation of bevacizumab in the primary treatment of ovarian cancer. *Burger RA et al., N Engl J Med. 2011 Dec 29* |
| [31216226](https://www.ncbi.nlm.nih.gov/pubmed/31216226) | Final Overall Survival of a Randomized Trial of Bevacizumab for Primary Treatment of Ovarian Cancer. *Tewari KS et al., J Clin Oncol. 2019 09 10* |
| [29863955](https://www.ncbi.nlm.nih.gov/pubmed/29863955) | Atezolizumab for First-Line Treatment of Metastatic Nonsquamous NSCLC. *Socinski MA et al., N Engl J Med. 2018 Jun 14* |
| [34051880](https://www.ncbi.nlm.nih.gov/pubmed/34051880) | Patient-reported outcomes with atezolizumab plus bevacizumab versus sorafenib in patients with unresectable hepatocellular carcinoma (IMbrave150): an open-label, randomised, phase 3 trial. *Galle PR et al., Lancet Oncol. 2021 07* |
| [34189869](https://www.ncbi.nlm.nih.gov/pubmed/34189869) | Characterization of response to atezolizumab + bevacizumab versus sorafenib for hepatocellular carcinoma: Results from the IMbrave150 trial. *Salem R et al., Cancer Med. 2021 08* |
| [34534429](https://www.ncbi.nlm.nih.gov/pubmed/34534429) | Pembrolizumab for Persistent, Recurrent, or Metastatic Cervical Cancer. *Colombo N et al., N Engl J Med. 2021 11 11* |
| [30075697](https://www.ncbi.nlm.nih.gov/pubmed/30075697) | Necitumumab in the treatment of non-small-cell lung cancer: clinical controversies. *di Noia V et al., Expert Opin Biol Ther. 2018 09* |
| [33188892](https://www.ncbi.nlm.nih.gov/pubmed/33188892) | EGFR targeting for cancer therapy: Pharmacology and immunoconjugates with drugs and nanoparticles. *Santos EDS et al., Int J Pharm. 2021 Jan 05* |
| [20197484](https://www.ncbi.nlm.nih.gov/pubmed/20197484) | A phase I pharmacologic study of necitumumab (IMC-11F8), a fully human IgG1 monoclonal antibody directed against EGFR in patients with advanced solid malignancies. *Kuenen B et al., Clin Cancer Res. 2010 Mar 15* |
| [31228284](https://www.ncbi.nlm.nih.gov/pubmed/31228284) | The effects of somatic mutations on EGFR interaction with anti-EGFR monoclonal antibodies: Implication for acquired resistance. *Tabasinezhad M et al., Proteins. 2020 01* |
| [32793499](https://www.ncbi.nlm.nih.gov/pubmed/32793499) | The Latest Battles Between EGFR Monoclonal Antibodies and Resistant Tumor Cells. *Cai WQ et al., Front Oncol. 2020* |
| [32371296](https://www.ncbi.nlm.nih.gov/pubmed/32371296) | New insights into the pharmacological, immunological, and CAR-T-cell approaches in the treatment of hepatocellular carcinoma. *Dal Bo M et al., Drug Resist Updat. 2020 07* |
| [24094768](https://www.ncbi.nlm.nih.gov/pubmed/24094768) | Ramucirumab monotherapy for previously treated advanced gastric or gastro-oesophageal junction adenocarcinoma (REGARD): an international, randomised, multicentre, placebo-controlled, phase 3 trial. *Fuchs CS et al., Lancet. 2014 Jan 04* |
| [25240821](https://www.ncbi.nlm.nih.gov/pubmed/25240821) | Ramucirumab plus paclitaxel versus placebo plus paclitaxel in patients with previously treated advanced gastric or gastro-oesophageal junction adenocarcinoma (RAINBOW): a double-blind, randomised phase 3 trial. *Wilke H et al., Lancet Oncol. 2014 Oct* |
| [25877855](https://www.ncbi.nlm.nih.gov/pubmed/25877855) | Ramucirumab versus placebo in combination with second-line FOLFIRI in patients with metastatic colorectal carcinoma that progressed during or after first-line therapy with bevacizumab, oxaliplatin, and a fluoropyrimidine (RAISE): a randomised, double-blind, multicentre, phase 3 study. *Tabernero J et al., Lancet Oncol. 2015 May* |
| [31591063](https://www.ncbi.nlm.nih.gov/pubmed/31591063) | Ramucirumab plus erlotinib in patients with untreated, EGFR-mutated, advanced non-small-cell lung cancer (RELAY): a randomised, double-blind, placebo-controlled, phase 3 trial. *Nakagawa K et al., Lancet Oncol. 2019 12* |
| [23803182](https://www.ncbi.nlm.nih.gov/pubmed/23803182) | Targeted inhibition of VEGF receptor 2: an update on ramucirumab. *Clarke JM et al., Expert Opin Biol Ther. 2013 Aug* |
| [23881668](https://www.ncbi.nlm.nih.gov/pubmed/23881668) | Dabrafenib: first global approval. *Ballantyne AD et al., Drugs. 2013 Aug* |
| [22735384](https://www.ncbi.nlm.nih.gov/pubmed/22735384) | Dabrafenib in BRAF-mutated metastatic melanoma: a multicentre, open-label, phase 3 randomised controlled trial. *Hauschild A et al., Lancet. 2012 Jul 28* |
| [24583796](https://www.ncbi.nlm.nih.gov/pubmed/24583796) | Dabrafenib and trametinib, alone and in combination for BRAF-mutant metastatic melanoma. *Menzies AM et al., Clin Cancer Res. 2014 Apr 15* |
| [28475671](https://www.ncbi.nlm.nih.gov/pubmed/28475671) | Dabrafenib plus trametinib versus dabrafenib monotherapy in patients with metastatic BRAF V600E/K-mutant melanoma: long-term survival and safety analysis of a phase 3 study. *Long GV et al., Ann Oncol. 2017 Jul 01* |
| [28891408](https://www.ncbi.nlm.nih.gov/pubmed/28891408) | Adjuvant Dabrafenib plus Trametinib in Stage III BRAF-Mutated Melanoma. *Long GV et al., N Engl J Med. 2017 11 09* |
| [29072975](https://www.ncbi.nlm.nih.gov/pubmed/29072975) | Dabrafenib and Trametinib Treatment in Patients With Locally Advanced or Metastatic BRAF V600-Mutant Anaplastic Thyroid Cancer. *Subbiah V et al., J Clin Oncol. 2018 01 01* |
| [22131348](https://www.ncbi.nlm.nih.gov/pubmed/22131348) | Resistance to BRAF inhibitors: unraveling mechanisms and future treatment options. *Villanueva J et al., Cancer Res. 2011 Dec 01* |
| [24265153](https://www.ncbi.nlm.nih.gov/pubmed/24265153) | The genetic landscape of clinical resistance to RAF inhibition in metastatic melanoma. *Van Allen EM et al., Cancer Discov. 2014 Jan* |
| [24670642](https://www.ncbi.nlm.nih.gov/pubmed/24670642) | Reversible and adaptive resistance to BRAF(V600E) inhibition in melanoma. *Sun C et al., Nature. 2014 Apr 03* |
| [32368388](https://www.ncbi.nlm.nih.gov/pubmed/32368388) | BRAF in malignant melanoma progression and metastasis: potentials and challenges. *Alqathama A, Am J Cancer Res. 2020* |
| [33419275](https://www.ncbi.nlm.nih.gov/pubmed/33419275) | Clinical Implications of Acquired BRAF Inhibitors Resistance in Melanoma. *Savoia P et al., Int J Mol Sci. 2020 Dec 20* |
| [32956754](https://www.ncbi.nlm.nih.gov/pubmed/32956754) | Resistance mechanisms to targeted therapy in BRAF-mutant melanoma - A mini review. *Tangella LP et al., Biochim Biophys Acta Gen Subj. 2021 01* |
| [5452114](https://www.ncbi.nlm.nih.gov/pubmed/5452114) | Ease of habituation to repeated auditory and somesthetic stimulation in the human newborn. *Moreau T et al., J Exp Child Psychol. 1970 Apr* |
| [23846731](https://www.ncbi.nlm.nih.gov/pubmed/23846731) | Trametinib: first global approval. *Wright CJ et al., Drugs. 2013 Jul* |
| [22805292](https://www.ncbi.nlm.nih.gov/pubmed/22805292) | Activity of the oral MEK inhibitor trametinib in patients with advanced melanoma: a phase 1 dose-escalation trial. *Falchook GS et al., Lancet Oncol. 2012 Aug* |
| [31249721](https://www.ncbi.nlm.nih.gov/pubmed/31249721) | Trametinib: A Targeted Therapy in Metastatic Melanoma. *Hoffner B et al., J Adv Pract Oncol. 2018 Nov-Dec* |
| [26347206](https://www.ncbi.nlm.nih.gov/pubmed/26347206) | Trametinib: a MEK inhibitor for management of metastatic melanoma. *Lugowska I et al., Onco Targets Ther. 2015* |
| [30690294](https://www.ncbi.nlm.nih.gov/pubmed/30690294) | Five-year outcomes from a phase 3 METRIC study in patients with BRAF V600 E/K-mutant advanced or metastatic melanoma. *Robert C et al., Eur J Cancer. 2019 03* |
| [22663011](https://www.ncbi.nlm.nih.gov/pubmed/22663011) | Improved survival with MEK inhibition in BRAF-mutated melanoma. *Flaherty KT et al., N Engl J Med. 2012 Jul 12* |
| [25265492](https://www.ncbi.nlm.nih.gov/pubmed/25265492) | Combined BRAF and MEK inhibition versus BRAF inhibition alone in melanoma. *Long GV et al., N Engl J Med. 2014 Nov 13* |
| [23020132](https://www.ncbi.nlm.nih.gov/pubmed/23020132) | Combined BRAF and MEK inhibition in melanoma with BRAF V600 mutations. *Flaherty KT et al., N Engl J Med. 2012 11 01* |
| [25452114](https://www.ncbi.nlm.nih.gov/pubmed/25452114) | Increased MAPK reactivation in early resistance to dabrafenib/trametinib combination therapy of BRAF-mutant metastatic melanoma. *Long GV et al., Nat Commun. 2014 Dec 02* |
| [33340965](https://www.ncbi.nlm.nih.gov/pubmed/33340965) | MEK inhibitor resistance mechanisms and recent developments in combination trials. *Kun E et al., Cancer Treat Rev. 2021 Jan* |
| [27028853](https://www.ncbi.nlm.nih.gov/pubmed/27028853) | Comparative profiles of BRAF inhibitors: the paradox index as a predictor of clinical toxicity. *Adelmann CH et al., Oncotarget. 2016 May 24* |
| [22067401](https://www.ncbi.nlm.nih.gov/pubmed/22067401) | RAS mutations are associated with the development of cutaneous squamous cell tumors in patients treated with RAF inhibitors. *Oberholzer PA et al., J Clin Oncol. 2012 Jan 20* |
| [22256804](https://www.ncbi.nlm.nih.gov/pubmed/22256804) | RAS mutations in cutaneous squamous-cell carcinomas in patients treated with BRAF inhibitors. *Su F et al., N Engl J Med. 2012 Jan 19* |
| [20130576](https://www.ncbi.nlm.nih.gov/pubmed/20130576) | RAF inhibitors prime wild-type RAF to activate the MAPK pathway and enhance growth. *Hatzivassiliou G et al., Nature. 2010 Mar 18* |
| [20179705](https://www.ncbi.nlm.nih.gov/pubmed/20179705) | RAF inhibitors transactivate RAF dimers and ERK signalling in cells with wild-type BRAF. *Poulikakos PI et al., Nature. 2010 Mar 18* |
| [25096067](https://www.ncbi.nlm.nih.gov/pubmed/25096067) | FDA approval summary: vemurafenib for treatment of unresectable or metastatic melanoma with the BRAFV600E mutation. *Kim G et al., Clin Cancer Res. 2014 Oct 01* |
| [22356324](https://www.ncbi.nlm.nih.gov/pubmed/22356324) | Survival in BRAF V600-mutant advanced melanoma treated with vemurafenib. *Sosman JA et al., N Engl J Med. 2012 Feb 23* |
| [29188284](https://www.ncbi.nlm.nih.gov/pubmed/29188284) | Vemurafenib for BRAF V600-Mutant Erdheim-Chester Disease and Langerhans Cell Histiocytosis: Analysis of Data From the Histology-Independent, Phase 2, Open-label VE-BASKET Study. *Diamond EL et al., JAMA Oncol. 2018 Mar 01* |
| [30120160](https://www.ncbi.nlm.nih.gov/pubmed/30120160) | FDA Approval Summary: Vemurafenib for the Treatment of Patients with Erdheim-Chester Disease with the BRAFV600 Mutation. *Oneal PA et al., Oncologist. 2018 12* |
| [25037139](https://www.ncbi.nlm.nih.gov/pubmed/25037139) | Combination of vemurafenib and cobimetinib in patients with advanced BRAF(V600)-mutated melanoma: a phase 1b study. *Ribas A et al., Lancet Oncol. 2014 Aug* |
| [27480103](https://www.ncbi.nlm.nih.gov/pubmed/27480103) | Cobimetinib combined with vemurafenib in advanced BRAF(V600)-mutant melanoma (coBRIM): updated efficacy results from a randomised, double-blind, phase 3 trial. *Ascierto PA et al., Lancet Oncol. 2016 Sep* |
| [25265494](https://www.ncbi.nlm.nih.gov/pubmed/25265494) | Combined vemurafenib and cobimetinib in BRAF-mutated melanoma. *Larkin J et al., N Engl J Med. 2014 Nov 13* |
| [33604667](https://www.ncbi.nlm.nih.gov/pubmed/33604667) | Identification of pathways modulating vemurafenib resistance in melanoma cells via a genome-wide CRISPR/Cas9 screen. *Goh CJH et al., G3 (Bethesda). 2021 02 09* |
| [33503393](https://www.ncbi.nlm.nih.gov/pubmed/33503393) | Encorafenib Plus Cetuximab as a New Standard of Care for Previously Treated BRAF V600E-Mutant Metastatic Colorectal Cancer: Updated Survival Results and Subgroup Analyses from the BEACON Study. *Tabernero J et al., J Clin Oncol. 2021 02 01* |
| [30892987](https://www.ncbi.nlm.nih.gov/pubmed/30892987) | Binimetinib, Encorafenib, and Cetuximab Triplet Therapy for Patients WithV600E-Mutant Metastatic Colorectal Cancer: Safety Lead-In Results From the Phase III BEACON Colorectal Cancer Study. *Van Cutsem E et al., J Clin Oncol. 2019 06 10* |
| [31566309](https://www.ncbi.nlm.nih.gov/pubmed/31566309) | Encorafenib, Binimetinib, and Cetuximab inV600E-Mutated Colorectal Cancer. *Kopetz S et al., N Engl J Med. 2019 10 24* |
| [28363909](https://www.ncbi.nlm.nih.gov/pubmed/28363909) | A Phase Ib Dose-Escalation Study of Encorafenib and Cetuximab with or without Alpelisib in Metastatic-Mutant Colorectal Cancer. *van Geel RMJM et al., Cancer Discov. 2017 06* |
| [33204026](https://www.ncbi.nlm.nih.gov/pubmed/33204026) | Mutational profiles associated with resistance in patients with BRAFV600E mutant colorectal cancer treated with cetuximab and encorafenib +/- binimetinib or alpelisib. *Huijberts SCFA et al., Br J Cancer. 2021 01* |
| [32249628](https://www.ncbi.nlm.nih.gov/pubmed/32249628) | The discovery and development of binimetinib for the treatment of melanoma. *Tran B et al., Expert Opin Drug Discov. 2020 07* |
| [30881167](https://www.ncbi.nlm.nih.gov/pubmed/30881167) | How the discovery of rituximab impacted the treatment of B-cell non-Hodgkin's lymphomas. *Mohammed R et al., J Blood Med. 2019* |
| [28983798](https://www.ncbi.nlm.nih.gov/pubmed/28983798) | Rituximab in B-Cell Hematologic Malignancies: A Review of 20 Years of Clinical Experience. *Salles G et al., Adv Ther. 2017 10* |
| [26443686](https://www.ncbi.nlm.nih.gov/pubmed/26443686) | A molecular perspective on rituximab: A monoclonal antibody for B cell non Hodgkin lymphoma and other affections. *Seyfizadeh N et al., Crit Rev Oncol Hematol. 2016 Jan* |
| [24528902](https://www.ncbi.nlm.nih.gov/pubmed/24528902) | Rituximab for non-Hodgkin's lymphoma: a story of rapid success in translation. *Harrison AM et al., Clin Transl Sci. 2014 Feb* |
| [30096012](https://www.ncbi.nlm.nih.gov/pubmed/30096012) | Anti-CD20 monoclonal antibodies: reviewing a revolution. *Casan JML et al., Hum Vaccin Immunother. 2018* |
| [32296035](https://www.ncbi.nlm.nih.gov/pubmed/32296035) | Advances in targeted therapy for malignant lymphoma. *Wang L et al., Signal Transduct Target Ther. 2020 03 06* |
| [25882396](https://www.ncbi.nlm.nih.gov/pubmed/25882396) | Chlorambucil plus ofatumumab versus chlorambucil alone in previously untreated patients with chronic lymphocytic leukaemia (COMPLEMENT 1): a randomised, multicentre, open-label phase 3 trial. *Hillmen P et al., Lancet. 2015 May 09* |
| [26377300](https://www.ncbi.nlm.nih.gov/pubmed/26377300) | Ofatumumab maintenance versus observation in relapsed chronic lymphocytic leukaemia (PROLONG): an open-label, multicentre, randomised phase 3 study. *van Oers MH et al., Lancet Oncol. 2015 Oct* |
| [20601446](https://www.ncbi.nlm.nih.gov/pubmed/20601446) | U.S. Food and Drug Administration approval: ofatumumab for the treatment of patients with chronic lymphocytic leukemia refractory to fludarabine and alemtuzumab. *Lemery SJ et al., Clin Cancer Res. 2010 Sep 01* |
| [32933335](https://www.ncbi.nlm.nih.gov/pubmed/32933335) | Anti-CD20 treatment for B-cell malignancies: current status and future directions. *Klein C et al., Expert Opin Biol Ther. 2021 02* |
| [31352604](https://www.ncbi.nlm.nih.gov/pubmed/31352604) | Polatuzumab Vedotin: First Global Approval. *Deeks ED, Drugs. 2019 Sep* |
| [31693429](https://www.ncbi.nlm.nih.gov/pubmed/31693429) | Polatuzumab Vedotin in Relapsed or Refractory Diffuse Large B-Cell Lymphoma. *Sehn LH et al., J Clin Oncol. 2020 01 10* |
| [29856685](https://www.ncbi.nlm.nih.gov/pubmed/29856685) | Phase 3 Trial of Ibrutinib plus Rituximab in Waldenström's Macroglobulinemia. *Dimopoulos MA et al., N Engl J Med. 2018 Jun 21* |
| [34606378](https://www.ncbi.nlm.nih.gov/pubmed/34606378) | Ibrutinib Plus Rituximab Versus Placebo Plus Rituximab for Waldenström's Macroglobulinemia: Final Analysis From the Randomized Phase III iNNOVATE Study. *Buske C et al., J Clin Oncol. 2022 01 01* |
| [30218345](https://www.ncbi.nlm.nih.gov/pubmed/30218345) | An Update of Efficacy and Safety of Cetuximab in Metastatic Colorectal Cancer: A Narrative Review. *Fornasier G et al., Adv Ther. 2018 10* |
| [31616627](https://www.ncbi.nlm.nih.gov/pubmed/31616627) | Distinguishing Features of Cetuximab and Panitumumab in Colorectal Cancer and Other Solid Tumors. *García-Foncillas J et al., Front Oncol. 2019* |
| [16336752](https://www.ncbi.nlm.nih.gov/pubmed/16336752) | Overview of monoclonal antibodies and small molecules targeting the epidermal growth factor receptor pathway in colorectal cancer. *Snyder LC et al., Clin Colorectal Cancer. 2005 Nov* |
| [15821783](https://www.ncbi.nlm.nih.gov/pubmed/15821783) | Cetuximab: an epidermal growth factor receptor chemeric human-murine monoclonal antibody. *Harding J et al., Drugs Today (Barc). 2005 Feb* |
| [33237690](https://www.ncbi.nlm.nih.gov/pubmed/33237690) | Cetuximab Therapy and RAS andGenotype *Dean L et al., National Center for Biotechnology Information (US) 2012* |
| [33833048](https://www.ncbi.nlm.nih.gov/pubmed/33833048) | Improving selection of patients with metastatic colorectal cancer to benefit from cetuximab based on KIR genotypes. *Manzanares-Martin B et al., J Immunother Cancer. 2021 04* |
| [33154570](https://www.ncbi.nlm.nih.gov/pubmed/33154570) | FOLFIRI plus cetuximab or bevacizumab for advanced colorectal cancer: final survival and per-protocol analysis of FIRE-3, a randomised clinical trial. *Heinemann V et al., Br J Cancer. 2021 02* |
| [34896698](https://www.ncbi.nlm.nih.gov/pubmed/34896698) | Management of adverse events from the treatment of encorafenib plus cetuximab for patients with BRAF V600E-mutant metastatic colorectal cancer: insights from the BEACON CRC study. *Tabernero J et al., ESMO Open. 2021 12* |
| [34482179](https://www.ncbi.nlm.nih.gov/pubmed/34482179) | A randomized phase II study comparing the efficacy and safety of the glyco-optimized anti-EGFR antibody tomuzotuximab against cetuximab in patients with recurrent and/or metastatic squamous cell cancer of the head and neck - the RESGEX study. *Klinghammer K et al., ESMO Open. 2021 10* |
| [34022697](https://www.ncbi.nlm.nih.gov/pubmed/34022697) | Docetaxel, cisplatin and 5-FU compared with docetaxel, cisplatin and cetuximab as induction chemotherapy in advanced squamous cell carcinoma of the head and neck: Results of a randomised phase II AGMT trial. *Keil F et al., Eur J Cancer. 2021 07* |
| [35260570](https://www.ncbi.nlm.nih.gov/pubmed/35260570) | Clinical utility of PDX cohorts to reveal biomarkers of intrinsic resistance and clonal architecture changes underlying acquired resistance to cetuximab in HNSCC. *Yao Y et al., Signal Transduct Target Ther. 2022 03 08* |
| [34663410](https://www.ncbi.nlm.nih.gov/pubmed/34663410) | Resistance to anti-EGFR therapies in metastatic colorectal cancer: underlying mechanisms and reversal strategies. *Zhou J et al., J Exp Clin Cancer Res. 2021 Oct 18* |
| [21596817](https://www.ncbi.nlm.nih.gov/pubmed/21596817) | Panitumumab (vectibix). *Gemmete JJ et al., AJNR Am J Neuroradiol. 2011 Jun-Jul* |
| [34152568](https://www.ncbi.nlm.nih.gov/pubmed/34152568) | Panitumumab: A Review of Clinical Pharmacokinetic and Pharmacology Properties After Over a Decade of Experience in Patients with Solid Tumors. *Kast J et al., Adv Ther. 2021 07* |
| [34533973](https://www.ncbi.nlm.nih.gov/pubmed/34533973) | Panitumumab Plus Fluorouracil and Folinic Acid Versus Fluorouracil and Folinic Acid Alone as Maintenance Therapy in RAS Wild-Type Metastatic Colorectal Cancer: The Randomized PANAMA Trial (AIO KRK 0212). *Modest DP et al., J Clin Oncol. 2022 01 01* |
| [29080924](https://www.ncbi.nlm.nih.gov/pubmed/29080924) | Exploratory analyses assessing the impact of early tumour shrinkage and depth of response on survival outcomes in patients with RAS wild-type metastatic colorectal cancer receiving treatment in three randomised panitumumab trials. *Taieb J et al., J Cancer Res Clin Oncol. 2018 Feb* |
| [24718886](https://www.ncbi.nlm.nih.gov/pubmed/24718886) | Final results from PRIME: randomized phase III study of panitumumab with FOLFOX4 for first-line treatment of metastatic colorectal cancer. *Douillard JY et al., Ann Oncol. 2014 Jul* |
| [24739896](https://www.ncbi.nlm.nih.gov/pubmed/24739896) | Panitumumab versus cetuximab in patients with chemotherapy-refractory wild-type KRAS exon 2 metastatic colorectal cancer (ASPECCT): a randomised, multicentre, open-label, non-inferiority phase 3 study. *Price TJ et al., Lancet Oncol. 2014 May* |
| [29488071](https://www.ncbi.nlm.nih.gov/pubmed/29488071) | BRAF and MEK Inhibitors: Use and Resistance in BRAF-Mutated Cancers. *Sanchez JN et al., Drugs. 2018 Apr* |
| [22315332](https://www.ncbi.nlm.nih.gov/pubmed/22315332) | Preclinical disposition of GDC-0973 and prospective and retrospective analysis of human dose and efficacy predictions. *Choo EF et al., Drug Metab Dispos. 2012 May* |
| [32005279](https://www.ncbi.nlm.nih.gov/pubmed/32005279) | HER2 heterogeneity and resistance to anti-HER2 antibody-drug conjugates. *Ocaña A et al., Breast Cancer Res. 2020 01 31* |
| [33629601](https://www.ncbi.nlm.nih.gov/pubmed/33629601) | A Review of Fam-Trastuzumab Deruxtecan-nxki in HER2-Positive Breast Cancer. *Nguyen X et al., Ann Pharmacother. 2021 11* |
| [33658846](https://www.ncbi.nlm.nih.gov/pubmed/33658846) | Profile of Trastuzumab Deruxtecan in the Management of Patients with HER2-Positive Unresectable or Metastatic Breast Cancer: An Evidence-Based Review. *Linehan AS et al., Breast Cancer (Dove Med Press). 2021* |
| [30241301](https://www.ncbi.nlm.nih.gov/pubmed/30241301) | Mechanisms Underlying the Action and Synergism of Trastuzumab and Pertuzumab in Targeting HER2-Positive Breast Cancer. *Nami B et al., Cancers (Basel). 2018 Sep 20* |
| [16236735](https://www.ncbi.nlm.nih.gov/pubmed/16236735) | The distinctive nature of HER2-positive breast cancers. *Burstein HJ, N Engl J Med. 2005 Oct 20* |
| [22471661](https://www.ncbi.nlm.nih.gov/pubmed/22471661) | Intrinsic and acquired resistance to HER2-targeted therapies in HER2 gene-amplified breast cancer: mechanisms and clinical implications. *Rexer BN et al., Crit Rev Oncog. 2012* |
| [34262612](https://www.ncbi.nlm.nih.gov/pubmed/34262612) | Update on the role of pembrolizumab in patients with unresectable or metastatic colorectal cancer. *Wookey V et al., Therap Adv Gastroenterol. 2021* |
| [28323504](https://www.ncbi.nlm.nih.gov/pubmed/28323504) | Pembrolizumab use for the treatment of advanced melanoma. *Specenier P, Expert Opin Biol Ther. 2017 06* |
| [35364421](https://www.ncbi.nlm.nih.gov/pubmed/35364421) | Updated efficacy and safety of KEYNOTE-224: a phase II study of pembrolizumab in patients with advanced hepatocellular carcinoma previously treated with sorafenib. *Kudo M et al., Eur J Cancer. 2022 05* |
| [33183120](https://www.ncbi.nlm.nih.gov/pubmed/33183120) | Pembrolizumab for advanced cervical cancer: safety and efficacy. *De Felice F et al., Expert Rev Anticancer Ther. 2021 02* |
| [34083238](https://www.ncbi.nlm.nih.gov/pubmed/34083238) | FDA Approval Summary: Pembrolizumab for the Treatment of Tumor Mutational Burden-High Solid Tumors. *Marcus L et al., Clin Cancer Res. 2021 09 01* |
| [32771306](https://www.ncbi.nlm.nih.gov/pubmed/32771306) | The FDA approval of pembrolizumab for adult and pediatric patients with tumor mutational burden (TMB) ≥10: a decision centered on empowering patients and their physicians. *Subbiah V et al., Ann Oncol. 2020 09* |
| [33846198](https://www.ncbi.nlm.nih.gov/pubmed/33846198) | FDA Approval Summary: Pembrolizumab for the First-line Treatment of Patients with MSI-H/dMMR Advanced Unresectable or Metastatic Colorectal Carcinoma. *Casak SJ et al., Clin Cancer Res. 2021 09 01* |
| [29360728](https://www.ncbi.nlm.nih.gov/pubmed/29360728) | Mechanisms of Resistance to PD-1 and PD-L1 Blockade. *Nowicki TS et al., Cancer J. 2018 Jan/Feb* |
| [28187290](https://www.ncbi.nlm.nih.gov/pubmed/28187290) | Primary, Adaptive, and Acquired Resistance to Cancer Immunotherapy. *Sharma P et al., Cell. 2017 02 09* |
| [32000802](https://www.ncbi.nlm.nih.gov/pubmed/32000802) | Predictive biomarkers and mechanisms underlying resistance to PD1/PD-L1 blockade cancer immunotherapy. *Ren D et al., Mol Cancer. 2020 01 30* |
| [12214266](https://www.ncbi.nlm.nih.gov/pubmed/12214266) | Anti-tumor activity of GW572016: a dual tyrosine kinase inhibitor blocks EGF activation of EGFR/erbB2 and downstream Erk1/2 and AKT pathways. *Xia W et al., Oncogene. 2002 Sep 12* |
| [34016991](https://www.ncbi.nlm.nih.gov/pubmed/34016991) | HER2-positive breast cancer and tyrosine kinase inhibitors: the time is now. *Schlam I et al., NPJ Breast Cancer. 2021 May 20* |
| [24876102](https://www.ncbi.nlm.nih.gov/pubmed/24876102) | Neuromedin U: a candidate biomarker and therapeutic target to predict and overcome resistance to HER-tyrosine kinase inhibitors. *Rani S et al., Cancer Res. 2014 Jul 15* |
| [26276735](https://www.ncbi.nlm.nih.gov/pubmed/26276735) | Mechanisms of lapatinib resistance in HER2-driven breast cancer. *D'Amato V et al., Cancer Treat Rev. 2015 Dec* |
| [28487443](https://www.ncbi.nlm.nih.gov/pubmed/28487443) | HER2 Reactivation through Acquisition of the HER2 L755S Mutation as a Mechanism of Acquired Resistance to HER2-targeted Therapy in HER2+ Breast Cancer. *Xu X et al., Clin Cancer Res. 2017 Sep 01* |
| [33480963](https://www.ncbi.nlm.nih.gov/pubmed/33480963) | Efficacy of Margetuximab vs Trastuzumab in Patients With Pretreated ERBB2-Positive Advanced Breast Cancer: A Phase 3 Randomized Clinical Trial. *Rugo HS et al., JAMA Oncol. 2021 Apr 01* |
| [30911337](https://www.ncbi.nlm.nih.gov/pubmed/30911337) | HER2-positive breast cancer: new therapeutic frontiers and overcoming resistance. *Pernas S et al., Ther Adv Med Oncol. 2019* |
| [15173008](https://www.ncbi.nlm.nih.gov/pubmed/15173008) | Antitumor activity of HKI-272, an orally active, irreversible inhibitor of the HER-2 tyrosine kinase. *Rabindran SK et al., Cancer Res. 2004 Jun 01* |
| [12502359](https://www.ncbi.nlm.nih.gov/pubmed/12502359) | Synthesis and structure-activity relationships of 6,7-disubstituted 4-anilinoquinoline-3-carbonitriles. The design of an orally active, irreversible inhibitor of the tyrosine kinase activity of the epidermal growth factor receptor (EGFR) and the human epidermal growth factor receptor-2 (HER-2). *Wissner A et al., J Med Chem. 2003 Jan 02* |
| [21487605](https://www.ncbi.nlm.nih.gov/pubmed/21487605) | A genome-wide RNAi screen identifies novel targets of neratinib sensitivity leading to neratinib and paclitaxel combination drug treatments. *Seyhan AA et al., Mol Biosyst. 2011 Jun* |
| [28152547](https://www.ncbi.nlm.nih.gov/pubmed/28152547) | Neratinib resistance and cross-resistance to other HER2-targeted drugs due to increased activity of metabolism enzyme cytochrome P4503A4. *Breslin S et al., Br J Cancer. 2017 Feb 28* |
| [28053022](https://www.ncbi.nlm.nih.gov/pubmed/28053022) | Phase I Study of ONT-380, a HER2 Inhibitor, in Patients with HER2+-Advanced Solid Tumors, with an Expansion Cohort in HER2Metastatic Breast Cancer (MBC). *Moulder SL et al., Clin Cancer Res. 2017 Jul 15* |
| [29401002](https://www.ncbi.nlm.nih.gov/pubmed/29401002) | Phosphatidylinositol 3-Kinase α-Selective Inhibition With Alpelisib (BYL719) in PIK3CA-Altered Solid Tumors: Results From the First-in-Human Study. *Juric D et al., J Clin Oncol. 2018 05 01* |
| [33246021](https://www.ncbi.nlm.nih.gov/pubmed/33246021) | Alpelisib plus fulvestrant for PIK3CA-mutated, hormone receptor-positive, human epidermal growth factor receptor-2-negative advanced breast cancer: final overall survival results from SOLAR-1. *André F et al., Ann Oncol. 2021 02* |
| [33707948](https://www.ncbi.nlm.nih.gov/pubmed/33707948) | Role of Alpelisib in the Treatment of PIK3CA-Mutated Breast Cancer: Patient Selection and Clinical Perspectives. *Chang DY et al., Ther Clin Risk Manag. 2021* |
| [33575071](https://www.ncbi.nlm.nih.gov/pubmed/33575071) | Alpelisib: A Novel Therapy for Patients WithMutated Metastatic Breast Cancer. *Wilhoit T et al., J Adv Pract Oncol. 2020 Sep-Oct* |
| [33245164](https://www.ncbi.nlm.nih.gov/pubmed/33245164) | A Phase II Study of Fulvestrant 500 mg as Maintenance Therapy in Hormone Receptor-Positive, Human Epidermal Growth Factor Receptor 2-Negative Patients with Advanced Breast Cancer After First-Line Chemotherapy. *Xu F et al., Oncologist. 2021 05* |
| [15018596](https://www.ncbi.nlm.nih.gov/pubmed/15018596) | Fulvestrant: a review of its use in hormone receptor-positive metastatic breast cancer in postmenopausal women with disease progression following antiestrogen therapy. *McKeage K et al., Drugs. 2004* |
| [25457991](https://www.ncbi.nlm.nih.gov/pubmed/25457991) | A good drug made better: the fulvestrant dose-response story. *Robertson JF et al., Clin Breast Cancer. 2014 Dec* |
| [32855207](https://www.ncbi.nlm.nih.gov/pubmed/32855207) | Fulvestrant-Mediated Attenuation of the Innate Immune Response Decreases ER+ Breast Cancer Growth In Vivo More Effectively than Tamoxifen. *Abrahamsson A et al., Cancer Res. 2020 10 15* |
| [14555500](https://www.ncbi.nlm.nih.gov/pubmed/14555500) | Fulvestrant in postmenopausal women with advanced breast cancer. *Bross PF et al., Clin Cancer Res. 2003 Oct 01* |
| [27908454](https://www.ncbi.nlm.nih.gov/pubmed/27908454) | Fulvestrant 500 mg versus anastrozole 1 mg for hormone receptor-positive advanced breast cancer (FALCON): an international, randomised, double-blind, phase 3 trial. *Robertson JFR et al., Lancet. 2016 12 17* |
| [26947331](https://www.ncbi.nlm.nih.gov/pubmed/26947331) | Fulvestrant plus palbociclib versus fulvestrant plus placebo for treatment of hormone-receptor-positive, HER2-negative metastatic breast cancer that progressed on previous endocrine therapy (PALOMA-3): final analysis of the multicentre, double-blind, phase 3 randomised controlled trial. *Cristofanilli M et al., Lancet Oncol. 2016 Apr* |
| [28580882](https://www.ncbi.nlm.nih.gov/pubmed/28580882) | MONARCH 2: Abemaciclib in Combination With Fulvestrant in Women With HR+/HER2- Advanced Breast Cancer Who Had Progressed While Receiving Endocrine Therapy. *Sledge GW et al., J Clin Oncol. 2017 Sep 01* |
| [29860922](https://www.ncbi.nlm.nih.gov/pubmed/29860922) | Phase III Randomized Study of Ribociclib and Fulvestrant in Hormone Receptor-Positive, Human Epidermal Growth Factor Receptor 2-Negative Advanced Breast Cancer: MONALEESA-3. *Slamon DJ et al., J Clin Oncol. 2018 08 20* |
| [20179227](https://www.ncbi.nlm.nih.gov/pubmed/20179227) | Everolimus. *Houghton PJ, Clin Cancer Res. 2010 Mar 01* |
| [24283268](https://www.ncbi.nlm.nih.gov/pubmed/24283268) | Everolimus is a potent inhibitor of activated hepatic stellate cell functions in vitro and in vivo, while demonstrating anti-angiogenic activities. *Piguet AC et al., Clin Sci (Lond). 2014 Jun* |
| [26330617](https://www.ncbi.nlm.nih.gov/pubmed/26330617) | Cellular and molecular effects of the mTOR inhibitor everolimus. *Saran U et al., Clin Sci (Lond). 2015 Nov* |
| [30554116](https://www.ncbi.nlm.nih.gov/pubmed/30554116) | Therapeutic targeting of angiogenesis molecular pathways in angiogenesis-dependent diseases. *Fallah A et al., Biomed Pharmacother. 2019 Feb* |
| [30848427](https://www.ncbi.nlm.nih.gov/pubmed/30848427) | mTOR inhibitor Everolimus-induced apoptosis in melanoma cells. *Ciołczyk-Wierzbicka D et al., J Cell Commun Signal. 2019 Sep* |
| [32770287](https://www.ncbi.nlm.nih.gov/pubmed/32770287) | Immune system and angiogenesis-related potential surrogate biomarkers of response to everolimus-based treatment in hormone receptor-positive breast cancer: an exploratory study. *Schettini F et al., Breast Cancer Res Treat. 2020 Nov* |
| [18653228](https://www.ncbi.nlm.nih.gov/pubmed/18653228) | Efficacy of everolimus in advanced renal cell carcinoma: a double-blind, randomised, placebo-controlled phase III trial. *Motzer RJ et al., Lancet. 2008 Aug 09* |
| [26703889](https://www.ncbi.nlm.nih.gov/pubmed/26703889) | Everolimus for the treatment of advanced, non-functional neuroendocrine tumours of the lung or gastrointestinal tract (RADIANT-4): a randomised, placebo-controlled, phase 3 study. *Yao JC et al., Lancet. 2016 Mar 05* |
| [29757017](https://www.ncbi.nlm.nih.gov/pubmed/29757017) | Everolimus in the treatment of neuroendocrine tumors: efficacy, side-effects, resistance, and factors affecting its place in the treatment sequence. *Lee L et al., Expert Opin Pharmacother. 2018 Jun* |
| [21047224](https://www.ncbi.nlm.nih.gov/pubmed/21047224) | Everolimus for subependymal giant-cell astrocytomas in tuberous sclerosis. *Krueger DA et al., N Engl J Med. 2010 Nov 04* |
| [23325902](https://www.ncbi.nlm.nih.gov/pubmed/23325902) | Everolimus long-term safety and efficacy in subependymal giant cell astrocytoma. *Krueger DA et al., Neurology. 2013 Feb 05* |
| [30169322](https://www.ncbi.nlm.nih.gov/pubmed/30169322) | Adjunctive everolimus for children and adolescents with treatment-refractory seizures associated with tuberous sclerosis complex: post-hoc analysis of the phase 3 EXIST-3 trial. *Curatolo P et al., Lancet Child Adolesc Health. 2018 07* |
| [22149876](https://www.ncbi.nlm.nih.gov/pubmed/22149876) | Everolimus in postmenopausal hormone-receptor-positive advanced breast cancer. *Baselga J et al., N Engl J Med. 2012 Feb 09* |
| [26482279](https://www.ncbi.nlm.nih.gov/pubmed/26482279) | Lenvatinib, everolimus, and the combination in patients with metastatic renal cell carcinoma: a randomised, phase 2, open-label, multicentre trial. *Motzer RJ et al., Lancet Oncol. 2015 Nov* |
| [32020516](https://www.ncbi.nlm.nih.gov/pubmed/32020516) | c-MET as a Potential Resistance Mechanism to Everolimus in Breast Cancer: From a Case Report to Patient Cohort Analysis. *Van den Bossche V et al., Target Oncol. 2020 02* |
| [31267758](https://www.ncbi.nlm.nih.gov/pubmed/31267758) | Everolimus resistance in clear cell renal cell carcinoma: miRNA-101 and HIF-2α as molecular triggers? *Nogueira I et al., Future Oncol. 2019 Jul* |
| [29895527](https://www.ncbi.nlm.nih.gov/pubmed/29895527) | The role of GSK3 and its reversal with GSK3 antagonism in everolimus resistance. *Aristizabal Prada ET et al., Endocr Relat Cancer. 2018 10* |
| [14513432](https://www.ncbi.nlm.nih.gov/pubmed/14513432) | Aromatase inhibitors: mechanism of action and role in the treatment of breast cancer. *Miller WR, Semin Oncol. 2003 Aug* |
| [24367167](https://www.ncbi.nlm.nih.gov/pubmed/24367167) | Adjuvant treatment of breast cancer in postmenopausal women: role of exemestane. *Macpherson IR et al., Breast Cancer (Dove Med Press). 2010 Oct 14* |
| [32700026](https://www.ncbi.nlm.nih.gov/pubmed/32700026) | Endocrine Therapy for Breast Cancer: A Model of Hormonal Manipulation. *Johnston SJ et al., Oncol Ther. 2018 Dec* |
| [31235695](https://www.ncbi.nlm.nih.gov/pubmed/31235695) | The beneficial androgenic action of steroidal aromatase inactivators in estrogen-dependent breast cancer after failure of nonsteroidal drugs. *Gao L et al., Cell Death Dis. 2019 06 24* |
| [10735887](https://www.ncbi.nlm.nih.gov/pubmed/10735887) | Exemestane is superior to megestrol acetate after tamoxifen failure in postmenopausal women with advanced breast cancer: results of a phase III randomized double-blind trial. The Exemestane Study Group. *Kaufmann M et al., J Clin Oncol. 2000 Apr* |
| [15014181](https://www.ncbi.nlm.nih.gov/pubmed/15014181) | A randomized trial of exemestane after two to three years of tamoxifen therapy in postmenopausal women with primary breast cancer. *Coombes RC et al., N Engl J Med. 2004 Mar 11* |
| [17307102](https://www.ncbi.nlm.nih.gov/pubmed/17307102) | Survival and safety of exemestane versus tamoxifen after 2-3 years' tamoxifen treatment (Intergroup Exemestane Study): a randomised controlled trial. *Coombes RC et al., Lancet. 2007 Feb 17* |
| [25810012](https://www.ncbi.nlm.nih.gov/pubmed/25810012) | Everolimus plus exemestane for the treatment of advanced breast cancer: a review of subanalyses from BOLERO-2. *Hortobagyi GN, Neoplasia. 2015 Mar* |
| [26064072](https://www.ncbi.nlm.nih.gov/pubmed/26064072) | Clinical utility of exemestane in the treatment of breast cancer. *Zucchini G et al., Int J Womens Health. 2015* |
| [29116433](https://www.ncbi.nlm.nih.gov/pubmed/29116433) | Safety of everolimus plus exemestane in patients with hormone-receptor-positive, HER2-negative locally advanced or metastatic breast cancer: results of phase IIIb BALLET trial in Spain. *Ciruelos E et al., Clin Transl Oncol. 2018 Jun* |
| [34461272](https://www.ncbi.nlm.nih.gov/pubmed/34461272) | Efficacy and safety profile of avelumab monotherapy. *Zhao B et al., Crit Rev Oncol Hematol. 2021 Oct* |
| [28407031](https://www.ncbi.nlm.nih.gov/pubmed/28407031) | Avelumab: clinical trial innovation and collaboration to advance anti-PD-L1 immunotherapy. *Chin K et al., Ann Oncol. 2017 07 01* |
| [35015593](https://www.ncbi.nlm.nih.gov/pubmed/35015593) | Avelumab in locally advanced or metastatic urothelial carcinoma. *Jackson-Spence F et al., Expert Rev Anticancer Ther. 2022 Feb* |
| [33839438](https://www.ncbi.nlm.nih.gov/pubmed/33839438) | Avelumab first-line maintenance in locally advanced or metastatic urothelial carcinoma: Applying clinical trial findings to clinical practice. *Grivas P et al., Cancer Treat Rev. 2021 Jun* |
| [33206587](https://www.ncbi.nlm.nih.gov/pubmed/33206587) | Maintenance avelumab for metastatic urothelial cancer: a new standard of care. *Erck A et al., Cancer Biol Ther. 2020 12 01* |
| [28375787](https://www.ncbi.nlm.nih.gov/pubmed/28375787) | Avelumab, an Anti-Programmed Death-Ligand 1 Antibody, In Patients With Refractory Metastatic Urothelial Carcinoma: Results From a Multicenter, Phase Ib Study. *Apolo AB et al., J Clin Oncol. 2017 Jul 01* |
| [29217288](https://www.ncbi.nlm.nih.gov/pubmed/29217288) | Avelumab in metastatic urothelial carcinoma after platinum failure (JAVELIN Solid Tumor): pooled results from two expansion cohorts of an open-label, phase 1 trial. *Patel MR et al., Lancet Oncol. 2018 01* |
| [30779531](https://www.ncbi.nlm.nih.gov/pubmed/30779531) | Avelumab plus Axitinib versus Sunitinib for Advanced Renal-Cell Carcinoma. *Motzer RJ et al., N Engl J Med. 2019 03 21* |
| [32339648](https://www.ncbi.nlm.nih.gov/pubmed/32339648) | Updated efficacy results from the JAVELIN Renal 101 trial: first-line avelumab plus axitinib versus sunitinib in patients with advanced renal cell carcinoma. *Choueiri TK et al., Ann Oncol. 2020 08* |
| [34715570](https://www.ncbi.nlm.nih.gov/pubmed/34715570) | Avelumab in patients with previously treated metastatic Merkel cell carcinoma (JAVELIN Merkel 200): updated overall survival data after >5 years of follow-up. *D'Angelo SP et al., ESMO Open. 2021 12* |
| [34301810](https://www.ncbi.nlm.nih.gov/pubmed/34301810) | First-line avelumab in a cohort of 116 patients with metastatic Merkel cell carcinoma (JAVELIN Merkel 200): primary and biomarker analyses of a phase II study. *D'Angelo SP et al., J Immunother Cancer. 2021 07* |
| [27592805](https://www.ncbi.nlm.nih.gov/pubmed/27592805) | Avelumab in patients with chemotherapy-refractory metastatic Merkel cell carcinoma: a multicentre, single-group, open-label, phase 2 trial. *Kaufman HL et al., Lancet Oncol. 2016 Oct* |
| [25616434](https://www.ncbi.nlm.nih.gov/pubmed/25616434) | Olaparib: first global approval. *Deeks ED, Drugs. 2015 Feb* |
| [25757679](https://www.ncbi.nlm.nih.gov/pubmed/25757679) | Olaparib: an oral PARP-1 and PARP-2 inhibitor with promising activity in ovarian cancer. *Gunderson CC et al., Future Oncol. 2015* |
| [30691122](https://www.ncbi.nlm.nih.gov/pubmed/30691122) | PARP-1/2 Inhibitor Olaparib Prevents or Partially Reverts EMT Induced by TGF-β in NMuMG Cells. *Schacke M et al., Int J Mol Sci. 2019 Jan 26* |
| [32782491](https://www.ncbi.nlm.nih.gov/pubmed/32782491) | PARP inhibition and immune modulation: scientific rationale and perspectives for the treatment of gynecologic cancers. *Lee EK et al., Ther Adv Med Oncol. 2020* |
| [30177437](https://www.ncbi.nlm.nih.gov/pubmed/30177437) | Mechanisms of PARP inhibitor sensitivity and resistance. *D'Andrea AD, DNA Repair (Amst). 2018 11* |
| [31538027](https://www.ncbi.nlm.nih.gov/pubmed/31538027) | Olaparib: A Novel Therapy for Metastatic Breast Cancer in Patients With a BRCA1/2 Mutation. *Caulfield SE et al., J Adv Pract Oncol. 2019 Mar* |
| [34552338](https://www.ncbi.nlm.nih.gov/pubmed/34552338) | Clinical Utility of Olaparib in the Treatment of Metastatic Castration-Resistant Prostate Cancer: A Review of Current Evidence and Patient Selection. *LeVee A et al., Onco Targets Ther. 2021* |
| [33017510](https://www.ncbi.nlm.nih.gov/pubmed/33017510) | FDA Approval Summary: Olaparib Monotherapy or in Combination with Bevacizumab for the Maintenance Treatment of Patients with Advanced Ovarian Cancer. *Arora S et al., Oncologist. 2021 01* |
| [34081848](https://www.ncbi.nlm.nih.gov/pubmed/34081848) | Adjuvant Olaparib for Patients with BRCA1- or-Mutated Breast Cancer. *Tutt ANJ et al., N Engl J Med. 2021 06 24* |
| [32343890](https://www.ncbi.nlm.nih.gov/pubmed/32343890) | Olaparib for Metastatic Castration-Resistant Prostate Cancer. *de Bono J et al., N Engl J Med. 2020 05 28* |
| [31851799](https://www.ncbi.nlm.nih.gov/pubmed/31851799) | Olaparib plus Bevacizumab as First-Line Maintenance in Ovarian Cancer. *Ray-Coquard I et al., N Engl J Med. 2019 12 19* |
| [25761096](https://www.ncbi.nlm.nih.gov/pubmed/25761096) | Niraparib: A Poly(ADP-ribose) Polymerase (PARP) Inhibitor for the Treatment of Tumors with Defective Homologous Recombination. *Jones P et al., J Med Chem. 2015 Apr 23* |
| [28474297](https://www.ncbi.nlm.nih.gov/pubmed/28474297) | Niraparib: First Global Approval. *Scott LJ, Drugs. 2017 Jun* |
| [32172572](https://www.ncbi.nlm.nih.gov/pubmed/32172572) | Niraparib for the Treatment of Recurrent Epithelial Ovarian, Fallopian Tube, or Primary Peritoneal Cancer. *Kerliu L et al., Ann Pharmacother. 2020 10* |
| [34363200](https://www.ncbi.nlm.nih.gov/pubmed/34363200) | An In-Depth Review of Niraparib in Ovarian Cancer: Mechanism of Action, Clinical Efficacy and Future Directions. *Akay M et al., Oncol Ther. 2021 Dec* |
| [27717299](https://www.ncbi.nlm.nih.gov/pubmed/27717299) | Niraparib Maintenance Therapy in Platinum-Sensitive, Recurrent Ovarian Cancer. *Mirza MR et al., N Engl J Med. 2016 12 01* |
| [30948273](https://www.ncbi.nlm.nih.gov/pubmed/30948273) | Niraparib monotherapy for late-line treatment of ovarian cancer (QUADRA): a multicentre, open-label, single-arm, phase 2 trial. *Moore KN et al., Lancet Oncol. 2019 05* |
| [27002934](https://www.ncbi.nlm.nih.gov/pubmed/27002934) | Phase 2 multicentre trial investigating intermittent and continuous dosing schedules of the poly(ADP-ribose) polymerase inhibitor rucaparib in germline BRCA mutation carriers with advanced ovarian and breast cancer. *Drew Y et al., Br J Cancer. 2016 Mar 29* |
| [34518297](https://www.ncbi.nlm.nih.gov/pubmed/34518297) | Synthetic Lethality in Ovarian Cancer. *Chandrasekaran A et al., Mol Cancer Ther. 2021 11* |
| [32086346](https://www.ncbi.nlm.nih.gov/pubmed/32086346) | Non-BRCA DNA Damage Repair Gene Alterations and Response to the PARP Inhibitor Rucaparib in Metastatic Castration-Resistant Prostate Cancer: Analysis From the Phase II TRITON2 Study. *Abida W et al., Clin Cancer Res. 2020 06 01* |
| [28916367](https://www.ncbi.nlm.nih.gov/pubmed/28916367) | Rucaparib maintenance treatment for recurrent ovarian carcinoma after response to platinum therapy (ARIEL3): a randomised, double-blind, placebo-controlled, phase 3 trial. *Coleman RL et al., Lancet. 2017 Oct 28* |
| [32359490](https://www.ncbi.nlm.nih.gov/pubmed/32359490) | Rucaparib for patients with platinum-sensitive, recurrent ovarian carcinoma (ARIEL3): post-progression outcomes and updated safety results from a randomised, placebo-controlled, phase 3 trial. *Ledermann JA et al., Lancet Oncol. 2020 05* |
| [32795228](https://www.ncbi.nlm.nih.gov/pubmed/32795228) | Rucaparib in Men With Metastatic Castration-Resistant Prostate Cancer Harboring aorGene Alteration. *Abida W et al., J Clin Oncol. 2020 11 10* |
| [27614696](https://www.ncbi.nlm.nih.gov/pubmed/27614696) | In vivo anti-tumor activity of the PARP inhibitor niraparib in homologous recombination deficient and proficient ovarian carcinoma. *AlHilli MM et al., Gynecol Oncol. 2016 Nov* |
| [32880196](https://www.ncbi.nlm.nih.gov/pubmed/32880196) | Niraparib in the treatment of previously treated advanced ovarian, fallopian tube or primary peritoneal cancer. *Rimel BJ et al., Future Oncol. 2020 Nov* |
| [25799992](https://www.ncbi.nlm.nih.gov/pubmed/25799992) | REV7 counteracts DNA double-strand break resection and affects PARP inhibition. *Xu G et al., Nature. 2015 May 28* |
| [34316715](https://www.ncbi.nlm.nih.gov/pubmed/34316715) | Characterization of a-silenced high-grade serous ovarian cancer model during development of PARP inhibitor resistance. *Hurley RM et al., NAR Cancer. 2021 Sep* |
| [30714316](https://www.ncbi.nlm.nih.gov/pubmed/30714316) | Exploiting DNA repair defects in colorectal cancer. *Reilly NM et al., Mol Oncol. 2019 04* |
| [29660759](https://www.ncbi.nlm.nih.gov/pubmed/29660759) | PARP inhibitors in breast cancer: Bringing synthetic lethality to the bedside. *Turk AA et al., Cancer. 2018 06 15* |
| [32122376](https://www.ncbi.nlm.nih.gov/pubmed/32122376) | PARP inhibitors in pancreatic cancer: molecular mechanisms and clinical applications. *Zhu H et al., Mol Cancer. 2020 03 02* |
| [32289275](https://www.ncbi.nlm.nih.gov/pubmed/32289275) | Response and Resistance to BCR-ABL1-Targeted Therapies. *Braun TP et al., Cancer Cell. 2020 04 13* |
| [34407542](https://www.ncbi.nlm.nih.gov/pubmed/34407542) | A phase 3, open-label, randomized study of asciminib, a STAMP inhibitor, vs bosutinib in CML after 2 or more prior TKIs. *Réa D et al., Blood. 2021 11 25* |
| [28329763](https://www.ncbi.nlm.nih.gov/pubmed/28329763) | The allosteric inhibitor ABL001 enables dual targeting of BCR-ABL1. *Wylie AA et al., Nature. 2017 03 30* |
| [28819281](https://www.ncbi.nlm.nih.gov/pubmed/28819281) | Mechanisms of resistance to the BCR-ABL1 allosteric inhibitor asciminib. *Qiang W et al., Leukemia. 2017 12* |
| [31543464](https://www.ncbi.nlm.nih.gov/pubmed/31543464) | Combining the Allosteric Inhibitor Asciminib with Ponatinib Suppresses Emergence of and Restores Efficacy against Highly Resistant BCR-ABL1 Mutants. *Eide CA et al., Cancer Cell. 2019 10 14* |
| [24420842](https://www.ncbi.nlm.nih.gov/pubmed/24420842) | Bosutinib: a review of its use in patients with Philadelphia chromosome-positive chronic myelogenous leukemia. *Syed YY et al., BioDrugs. 2014 Feb* |
| [31833784](https://www.ncbi.nlm.nih.gov/pubmed/31833784) | The role of bosutinib in the treatment of chronic myeloid leukemia. *Gambacorti-Passerini C et al., Future Oncol. 2020 01* |
| [28032244](https://www.ncbi.nlm.nih.gov/pubmed/28032244) | Dasatinib: A Review in Chronic Myeloid Leukaemia and Ph+ Acute Lymphoblastic Leukaemia. *Keating GM, Drugs. 2017 Jan* |
| [31612105](https://www.ncbi.nlm.nih.gov/pubmed/31612105) | BCR-ABL Independent Mechanisms of Resistance in Chronic Myeloid Leukemia. *Loscocco F et al., Front Oncol. 2019* |
| [34002056](https://www.ncbi.nlm.nih.gov/pubmed/34002056) | Kinase drug discovery 20 years after imatinib: progress and future directions. *Cohen P et al., Nat Rev Drug Discov. 2021 07* |
| [34322383](https://www.ncbi.nlm.nih.gov/pubmed/34322383) | Early and Next-Generation KIT/PDGFRA Kinase Inhibitors and the Future of Treatment for Advanced Gastrointestinal Stromal Tumor. *Bauer S et al., Front Oncol. 2021* |
| [22207690](https://www.ncbi.nlm.nih.gov/pubmed/22207690) | Chronic phase chronic myeloid leukemia patients with low OCT-1 activity randomized to high-dose imatinib achieve better responses and have lower failure rates than those randomized to standard-dose imatinib. *White DL et al., Haematologica. 2012 Jun* |
| [23610618](https://www.ncbi.nlm.nih.gov/pubmed/23610618) | Management of imatinib-resistant patients with chronic myeloid leukemia. *Bhamidipati PK et al., Ther Adv Hematol. 2013 Apr* |
| [22942908](https://www.ncbi.nlm.nih.gov/pubmed/22942908) | Current and emerging strategies for the management of imatinib-refractory advanced gastrointestinal stromal tumors. *Kee D et al., Ther Adv Med Oncol. 2012 Sep* |
| [16721371](https://www.ncbi.nlm.nih.gov/pubmed/16721371) | AMN107 (nilotinib): a novel and selective inhibitor of BCR-ABL. *Weisberg E et al., Br J Cancer. 2006 Jun 19* |
| [21419934](https://www.ncbi.nlm.nih.gov/pubmed/21419934) | Nilotinib: a novel, selective tyrosine kinase inhibitor. *Blay JY et al., Semin Oncol. 2011 Apr* |
| [19878872](https://www.ncbi.nlm.nih.gov/pubmed/19878872) | AP24534, a pan-BCR-ABL inhibitor for chronic myeloid leukemia, potently inhibits the T315I mutant and overcomes mutation-based resistance. *O'Hare T et al., Cancer Cell. 2009 Nov 06* |
| [32145037](https://www.ncbi.nlm.nih.gov/pubmed/32145037) | The multi-tyrosine kinase inhibitor ponatinib for chronic myeloid leukemia: Real-world data. *Luciano L et al., Eur J Haematol. 2020 Jul* |
| [29567798](https://www.ncbi.nlm.nih.gov/pubmed/29567798) | Ponatinib efficacy and safety in Philadelphia chromosome-positive leukemia: final 5-year results of the phase 2 PACE trial. *Cortes JE et al., Blood. 2018 07 26* |
| [24180494](https://www.ncbi.nlm.nih.gov/pubmed/24180494) | A phase 2 trial of ponatinib in Philadelphia chromosome-positive leukemias. *Cortes JE et al., N Engl J Med. 2013 Nov 07* |
| [28969556](https://www.ncbi.nlm.nih.gov/pubmed/28969556) | Ponatinib: A Review of Efficacy and Safety. *Massaro F et al., Curr Cancer Drug Targets. 2018* |
| [29411417](https://www.ncbi.nlm.nih.gov/pubmed/29411417) | Chronic myeloid leukemia: 2018 update on diagnosis, therapy and monitoring. *Jabbour E et al., Am J Hematol. 2018 03* |
| [25132497](https://www.ncbi.nlm.nih.gov/pubmed/25132497) | BCR-ABL1 compound mutations combining key kinase domain positions confer clinical resistance to ponatinib in Ph chromosome-positive leukemia. *Zabriskie MS et al., Cancer Cell. 2014 Sep 08* |
| [26603839](https://www.ncbi.nlm.nih.gov/pubmed/26603839) | Compound mutations in BCR-ABL1 are not major drivers of primary or secondary resistance to ponatinib in CP-CML patients. *Deininger MW et al., Blood. 2016 Feb 11* |

**INLINE REFERENCES OF CLINICAL TRIALS**

| CLINICALTRIALS.GOV ID | Citation |
| --- | --- |
| [NCT04507919](https://clinicaltrials.gov/ct2/show/NCT04507919) | Managed Access Program Cohort Treatment Plan CTMT212X2002I to Provide Access to Trametinib and Dabrafenib Combination Therapy for Patients With BRAF V600 Mutation-positive Advanced Non-Small Cell Lung Cancer *NA, Available started null* |
| [NCT03839342](https://clinicaltrials.gov/ct2/show/NCT03839342) | Binimetinib and Encorafenib for the Treatment of Advanced Solid Tumors With Non-V600E BRAF Mutations *Phase 2, Recruiting started June 7, 2019* |
| [NCT03505710](https://clinicaltrials.gov/ct2/show/NCT03505710) | DS-8201a in Human Epidermal Growth Factor Receptor 2 (HER2)-Expressing or -Mutated Non-Small Cell Lung Cancer *Phase 2, Active, not recruiting started May 21, 2018* |
| [NCT04644237](https://clinicaltrials.gov/ct2/show/NCT04644237) | Trastuzumab Deruxtecan in Participants With HER2-mutated Metastatic Non-small Cell Lung Cancer (NSCLC) *Phase 2, Active, not recruiting started March 19, 2021* |
| [NCT02675829](https://clinicaltrials.gov/ct2/show/NCT02675829) | Trial of Ado-Trastuzumab Emtansine for Patients With HER2 Amplified or Mutant Cancers *Phase 2, Recruiting started February 2016* |